AIR CONDITIONING HEATING & REFRIGERATION NEWS
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Inside Dope

By GEORGE F. TAUBENECK

Learn to live and laugh — thus delay your epitaph

Great New Days Baseball Is Back Again!
Hurt Pride
Home Town Solution
Many a Slip Twixt the Lip
More Baseball Oddities
What? No Peanuts?
Never Trust Women or Umpires
Dean Over Stengel
Dizzier Than Brooklyn

Great New Days Baseball Is Back Again!

Baseball is back again!

Imagine this: Ray Shore (Toronto, International League) pitched only one third of an inning, yet won two games! Date: Aug. 23, 1955. Opponent —Havana Cubans.

First of all, a suspended previous game was completed on that date. Shore didn't appear during the completion, but his winning-pitcher-of-record margin was preserved by teammates.

Next, he came into the regular game in the top of the ninth inning, with Toronto trailing, and two out. Shore disposed of the only batsman he faced. In the bottom of the ninth Toronto scored thrice to register Ray's second win of the evening.

Impossible to top that!

Hurt Pride

Tough catcher Jim Wilson (Phillies) was hit on the head by pitcher Huck Betts (Braves).

Contrite hurler Betts rushed to the plate—even though Wilson was still on his feet, apparently undazed.

"I'm O.K.," growled Wilson.

"Good," Betts retorted. "At least you could have shown me the courtesy of falling down. What'll they think of my fast ball now?"

Home Town Solution

Minor league baseball is facing extinction. Most analysts blame that sad fact on television, plus other competing entertainment (like bingo and horse racing).

Here's one solution—admittedly borrowed from radio-TV giveaway programs, movie bank nights, the numbers racket, and other panderings to the undeniable gambling instinct of all humans.

Let every patron of a minor league ballpark be given a card with a line score form from the turnstile attendant. Let the patron guess the number of

(Concluded on Page 16, Col. 1)

ARI To Meet May 3-6 at Hot Springs

WASHINGTON, D. C.—Members of the Air-Conditioning & Refrigeration Institute will stick strictly to business at ARI's annual meeting scheduled for May 3-6 at the Homestead in Hot Springs, Va.

Important changes in ARI's internal organization through amendment of its by-laws will be the primary topic of discussion and action, according to Don V. Petrone, president.

Recommended changes came out of a study made of ARI by an independent consultant employed by the board of directors and subsequent study of these recommendations by a special ARI planning committee, the by-laws committee, and the board of directors.

The study of ARI practices, policies, and procedures was begun a year ago.

The planning committee recommends establishment of better communications among members and between staff and members as to programs, activities, and accomplishments of ARI.

It stresses increased participation by members in establishment of policies, in approval of projects, in determination of budgets, in section activities, and in method of apportionment of expenses among members.

By-laws committee recommended enlargement of the nominating committee to be more representative of membership and enlargement of the board of directors for the same

(Concluded on Page 9, Col. 1)

Westinghouse Div. March Billings Top '58 by 47%

STAUNTON, Va. — Gross sales billings of Westinghouse packaged and applied air conditioning equipment for March were up 47% over March 1958, and first-quarter sales rose 14% over the corresponding 1958 period, R. K. Serfass, Air Conditioning Div. manager, has announced.

"It is probably even more significant," added Serfass, "that in spite of heavy March billings, the division's backlog of orders on April 1 was 287% of last year's backlog on the same date. First-quarter profits were the highest in the history of the division."

These increases were announced at a meeting held in Staunton to review immediate sales objectives and to complete plans for the 1960 Westinghouse marketing plan.

(Concluded on Page 33, Col. 1)

'58 Auto Unit Sales Dip Only 4.6% Despite 22% Decline In Car Volume

Special Auto Air Conditioning Section

This issue of the NEWS includes a special section on automobile air conditioning.

A major feature of this six-page section is a report on estimated sales for 1958, including charts on estimates by individual manufacturers, sales by regions, and total sales by year for the last six years, plus predictions on 1959 sales.

New product stories and service material also are in the section, which starts on page 24. In addition, on page 35, C. Dale Mericle starts Volume 4 of "Servicing Auto Air Conditioners," covering 1959 models.

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Copper Tube/Aluminum Fin Coils and Corrosion 30

DETROIT — Automobile air conditioner sales in 1958 took their first dip since they became a popular automobile accessory in 1953.

According to estimates by the NEWS, 1958 sales totaled 383,867 units, down 4.6% from the 402,233 units sold in 1957.

However, in view of the 22% decline in automobile sales from 1957 to 1958, the percentage of new cars having air conditioners rose to 8.2% from the 6.7% recorded in 1957.

Chart I on page 26 shows air conditioner sales by automobile manufacturers and independent automobile air conditioner manufacturers, as estimated by AIR CONDITIONING, HEATING & REFRIGERATION NEWS, based on a survey of these manufacturers and component suppliers.

The independent manufacturers actually gained some 300 units from their 1957 sales, and increased their share of the total market to 37% from the 35% they held in 1957.

About 20% of the installations credited to automobile

(Concluded on Page 26, Col. 4)

Judge Finds It Unreasonable

Theaters Win Relief from Cooling Water Fee

DETROIT — A circuit court judge here has declared unconstitutional, as it applied to two theaters, a provision in a Highland Park ordinance assessing a $20 per ton surcharge on non-water conserving air conditioners of 5 tons' capacity and over.

Judge Victor Baum of Wayne County Circuit Court asserted that the fee, intended to prohibit the use of non-conserving water-cooled air conditioners, was depriving the owners of their property and liberty without due process of law.

He took heed of evidence submitted that either paying the annual fee, which amounted to $1,215 for the Palmer Park Theater Corp., one of the plaintiffs, or converting to a cooling tower at an estimated cost of $10,000 would be more than the plaintiff could afford out of profits. And not using air conditioning during the summer months would severely damage its competitive position in one of the best seasons.

"It is difficult to see the reasonableness of legislation," Judge Baum declared in his opinion, "which, in effect, continues to hold a small number of consumers responsible for a shortage in the supply of water after this shortage ends and when the shortage was in itself in great part caused by the city's long failure to shore up a deteriorating water system."

While holding that the theaters' constitutional rights had been violated, Judge Baum refused to consider this a "class" suit where all other owners subject to the fee would benefit. There was no evidence to show, he said, that the fees others paid unreasonably deprived them of their property or tended to force them out of business as in the case of the two theaters.

He dropped them as parties to the suit without prejudice to their rights to resist enforcement in other actions and without prejudice to the rights of the city to seek enforcement against them.

Highland Park officials, in refusing to comment on the opinion, indicated that they have not decided what action to take.

A similar suit has been brought by Allied Theaters of Michigan, Inc. against the City of Detroit, challenging its water

(Concluded on Page 33, Col. 3)

Drayer-Hanson Fills Key Vacancies

LOS ANGELES — Filling of key vacancies at Drayer-Hanson, Div. of National-U.S. Radiator Corp., created by the departure of C. W. Pollock to Johnstown, Pa. where he assumed the post at the parent company of manager, air conditioning sales, was announced by General Manager Harold T. Hunt.

William Keichline has been advanced from assistant sales manager, air conditioning and refrigeration, to assistant to the general manager. He has held prime design-development, administrative, and sales posts since joining the firm in 1952.

Appointed sales manager for air conditioning and refrigeration products is Irvin Secord, for the past four years one of D-H's top-producing sales engineers and responsible for Dray-

(Concluded on Back Page, Col. 1)

Farm Bulk Milk Tank Installations Up 28%

WASHINGTON, D. C.—As of Jan. 1, 1959, there were an estimated 116,538 farm bulk milk tank installations in the United Sates. This figure represents an increase of 28% over the 91,363 installations reported for Jan. 1, 1958.

These preliminary figures have been announced jointly by Dairy Industries Supply Association and National Association of Dairy Equipment Manufacturers, which have conducted an annual census of farm bulk tank installations since 1955.

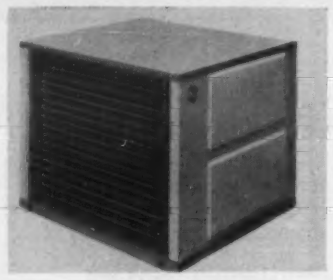
Complete results of the survey are expected to be released about May 1. This year's census

(Concluded on Page 9, Col. 1)

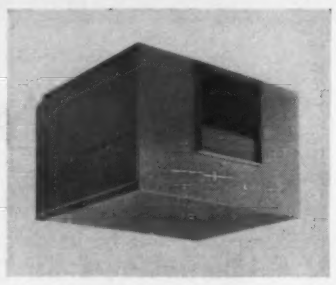
G-E Split System Heat Pump Has Compact Air Handler No Larger Than Room Air Conditioner

TYLER, Texas—Introduction of a new split-system "Weathertron" heat pump has been announced by General Electric Co., Central Air Conditioning Dept. The system consists of a weather-resistant remote outdoor unit, and an air handling unit.

The compact air handler is no larger than many room coolers, the manufacturer states, and can be mounted on the floor, on a platform, or suspended from the ceiling with special mountings to save floor space.



Outdoor Remote Unit



Indoor Air Handling Unit

A three-speed blower control allows versatility for airflow adjustments. Electric duct heaters are also available to supply supplemental heat during extremely cold weather.

The outdoor remote units are fully factory-charged with R-22, and equipped with built-in service valves to reduce installation time and costs at the job site, according to the announcement.

This addition to the Weathertron line is available in 2½ and 3-ton sizes. Meanwhile, research and development work is under way to broaden the line, it was noted.

NEWS readers are invited to write to the editor giving their opinions on any subject of interest to the industry.

Know How vs. Know Why

Signs Indicate Refrigeration Men Need, Use More Knowledge Than Heating Men

DETROIT—Are less training and skill required to be a heating contractor than a refrigeration contractor?

Interesting discussion of this question took place recently at a meeting of the Detroit Chapter of the American Society of Refrigerating Engineers after Frank Drogosch, chief safety engineer of the City of Detroit, reported, "We find that a far greater number of refrigeration contractors have become heating contractors than vice versa since we established the means whereby one could become the other."

"There seems to be no significant difference whether the heating man is gas, oil, or wet," Drogosch continued. "Fewer of them take and pass the refrigeration examination, compared to the number of refrigeration men who take and pass the heating exam."

Consensus, even among contractors who employ both heating and refrigeration men, is that the refrigeration man's scope of knowledge is much wider than the typical heating man's. Emanuel Feinberg held, "The heating man has always worked essentially with packaged equipment which merely had to be placed and mounted according to rather straightforward directions.

"Unlike the refrigeration worker who has had to assemble component parts, who has had to perform rather complex operations, the heating serviceman has never had to concern himself too greatly with much more than basic electrical and piping connections and relatively simple controls."

Carl Turnquist, assistant principal of Cass Technical High School and co-author of the well-known text "Modern Refrigeration and Air Conditioning," pointed out that "there is a lot more *why* in refrigeration work than in heating, which is more *how* than why."

Turnquist suggested that refrigeration service work requires more "abstract thought. A refrigeration course, even at the simplest level, contains a basic course in physics."

Recognizing this apparent difference between heating and cooling men, some contractors have adopted the practice of hiring only refrigeration servicemen who are readily converted into heating-cooling people.

"On a practical basis, I find the real difference between a heating and a cooling serviceman is the ability of the latter to diagnose problems which he has not encountered before," concluded a contractor.

Chicago RACCA Buys Sales Training Films

CHICAGO—"Effective Salesmanship" was the theme of the 12th Anniversary meeting of the Refrigeration & Air Conditioning Contractors Association of Chicago held recently.

Five films on sales techniques have been purchased by the association for future private usage of members in their own sales-training programs, it was announced. They were shown on closed-circuit TV at the Chicago Civic Opera House originally, under the sponsorship of the Chicago Chamber of Commerce.

Another series of five films on "Management" was scheduled for showing to the group.

Recently-elected 1959 officers of RACCA of Chicago are:

President—G. F. Restagno, Resco Refrigeration Service, Inc.; vice president—T. W. Reedy, North Town Refrigeration Corp.; secretary-treasurer—D. M. Brown, Refrigeration Systems, Inc.

KRAMER UNICON

WAY OUT IN FRONT and deservedly so!

KRAMER's largest UNICON has *50% more* capacity than any other! ▶ New, all aluminum casing ends rust and corrosion. Stands and structural steel are galvanized after fabrication. ▶Time-tested WINTERSTATS prevent low receiver pressure and insure start-up under any weather condition.

Available with horizontal or vertical air flow. Lowest silhouette. ▶ Kramer's UNICON is so quiet it can be used in unlimited multiples. ▶ No one can match Kramer's 20 years of accumulated know-how in air-cooled condensing and no other air-cooled condenser can match the Kramer UNICON—the pioneering leader in the industry.

WRITE FOR BULLETIN

KRAMER TRENTON CO./Trenton 5, N. J.

46 YEARS OF CONTINUOUS ACHIEVEMENT IN HEAT TRANSFER

Carrier Introduces Enlarged Line of Heat Pumps at Meeting In New York

SYRACUSE, N. Y.—An enlarged line of heat pumps was introduced to distributors for the Unitary Equipment Div. of Carrier Corp. at sales meetings held recently at eight locations across the country.

New in the Carrier heat pump series are a one-piece heat pump for the small home, a 7½-ton unit for commercial use, and a wide range of interchangeable condenser and fan coil units.

"From now on we can take on any heat pump job, from one, up to 100 tons," declared Robert Allen, commercial sales manager.

Also new for the residential markets is Carrier's new "Climate Center" control panel which monitors indoor conditions, outdoor weather, and the year-round operation of air conditioning equipment.

The Carrier distributors learned that the company's residential and commercial lines will be more flexible this year because of the use of common components.

"Assembly parts have been standardized for use on several different models, greatly simplifying stocking problems and reducing equipment costs."

This interchangeability of components was cited as giving the dealer "versatility to handle every conceivable job, with almost unlimited capacities and a minimum of engineering."

Among other products introduced is a rooftop combination heating-cooling unit for use on one-story flatroof buildings common to shopping centers. It is available in 7½ and 10-hp. cooling capacities and 160,000 to 200,000 B.t.u. heating, Carrier said. Completely factory assembled, it requires no ductwork and can be set into a hole in the ceiling.

Pierce Burke, residential heating sales manager, outlined a quality heating sales program for dealers. This included promotional aids and selling tools to educate consumers on the need for quality systems.

MRS. MARION PIERCE, president and general manager of Dow-Pierce, Inc., Carrier Corp. distributor in Boston, adds a feminine note to a meeting in New York City to introduce Carrier's 1959 line of commercial and residential products. George Long, director of marketing for the Unitary Equipment Div. (left), and Thomas Welch, New York district manager, were hosts at the New York meeting, the first of eight to be held across the country. New heat pump models for residential and commercial application were shown, along with a new Climate Center control panel for the home and flexible commercial package units for a wider range of applications.

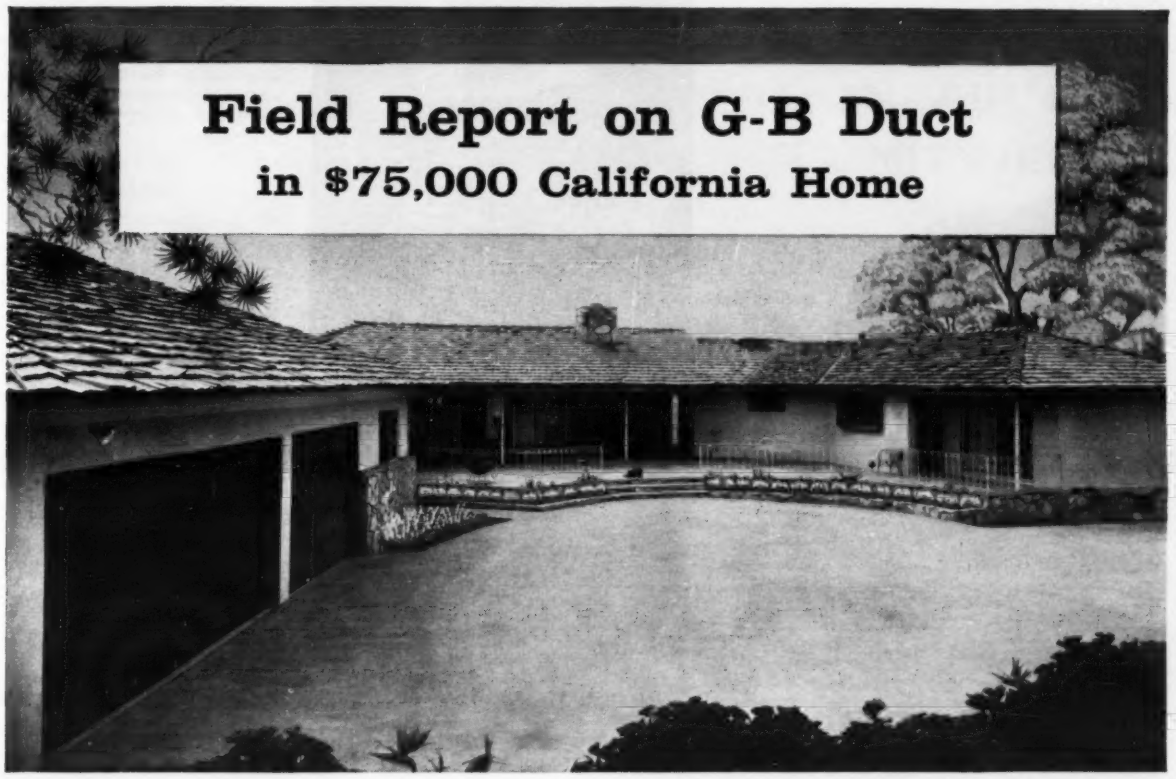
1958 Air Conditioner Sales In Miami Top '57

MIAMI, Fla.—Air conditioner sales for 1958 surpassed 1957 by 27% in the area served by the Florida Power & Light Co.

The utility reported sales of 60,933 units last year as compared with 47,927 in 1957. These are sales by distributors to dealers, by department stores and chain stores, and by some retailers who purchase their merchandise from sources other than Florida wholesalers.

Utility noted that only 147 dehumidifiers were sold in 1958 compared with 235 in 1957. Home freezer sales were up slightly, from 4,000 in 1957 to 4,335 in 1958. Refrigerator sales were 49,153 as compared with 61,896 in 1957. Of the air conditioners sold, 38,446 or 62% were sold in the Miami area.

Field Report on G-B Duct
in $75,000 California Home



Home of Mr. and Mrs. Edward J. Olstyn, Malibu Beach, Calif.

Job Location: Malibu Beach, Calif.

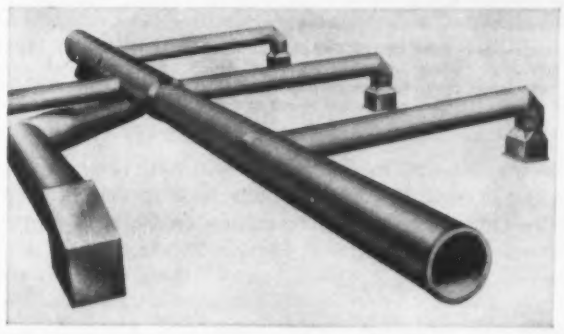
Contractor: California Heating and Air Conditioning Co., Los Angeles, Calif.

"We needed a duct system that would insure economical operation of two 105,000 btu Payne Co. horizontal furnaces," reports the contractor who recently installed them in a $75,000 California home, "and as the result of a comparative study, selected G-B Duct for the job. Its uniformly-thick glass fiber walls provide maximum thermal protection, as well as maximum acoustical absorption—important bonus benefits not only for the heating system, but also for the air conditioning system that will be added later. Although we selected G-B Duct for reasons of quality and performance, we were also pleased to find that its installed cost was slightly less than that anticipated for a conventional insulated duct system."

G-B Duct comes in one-piece 6′ sections in the same nominal sizes as round sheet metal pipe and fittings. In this California home, most of the job involved 6″ sizes, but 7″, 8″, 10″ and 14″ sizes were also used. A perimeter system of G-B Duct serves the living zone, while an attic installation takes care of the sleeping zone.

If you, too, are interested in **performance** and **economy**, specify G-B Duct—the first and only prefabricated round glass fiber duct tested and labeled by Underwriters' Laboratory as air conditioning and heating duct. The uniform glass fiber walls hold heat loss and heat gain to a minimum, and contain millions of tiny sound traps that make for whisper-quiet operation. The continuous airtight plastic barrier sleeve positively prevents condensation. All these advantages come "built-in" and G-B Duct can be quickly installed without special skills or tools.

For name of your nearest supplier, see adjoining column



GUSTIN-BACON Manufacturing Company

218 W. 10th St., Kansas City, Mo.

Thermal and acoustical glass fiber insulations • Molded glass fiber pipe insulation • Couplings and fittings for plain and grooved end pipe

Field Report on G-B Duct in $75,000 California Home

G-B DUCT DISTRIBUTORS

(See ad on facing page)

AKRON, Ohio, The Asbestos Supply Co.
ALBANY, Ga., Industry Insulation Co.
ALBANY, N. Y., Hudson Valley Asbestos Corp.
ALBUQUERQUE, Mt. States Insulation Co.
AMARILLO, Morrison Supply Co.
ATLANTA, Ga., Reynolds Aluminum Supply Co.
The Thompson Company
AUGUSTA, Ga., Noland Company
BALTIMORE, Md., Leroy Insulation Company
BEAUMONT, Tex., Solar Supply Company
BILLINGS, Mont., Big Horn Supply, Inc.
BIRMINGHAM, Ala., Hall-Newsome Co.
Hart-Greer, Inc.
Shook & Fletcher Supply Co.
Reynolds Aluminum Supply Co.
BOSTON, Mass., Homans-Kohler, Inc.
BUFFALO, Industrial Insulation Sales, Inc.
North Star Supply Company
CHARLESTON, W. Va., Dunbar Metal & Sup. Co., Inc.
CHATTANOOGA, Noland Co.
CHICAGO, E. C. Carlson Co.
Culberg Asbestos & Cork Co.
CLEVELAND, Ohio Asbestos & Ins. Co.
COLUMBUS, Culberg of Ohio
Santeler Brothers
CORPUS CHRISTI, Precision Insulation Co.
DALLAS, Insulation Supply Co.
Payne-Ladewig, Inc.
DECATUR, Ga., Lennox Industries
DENVER, Gene Wright Lumber Co.
DES MOINES, Iowa Asbestos Company, Inc.
DETROIT, G. L. Johnston Co.
ENGLEWOOD, N. J., Englewood Supply Co.
EVANSVILLE, Ind., George Koch Sons, Inc.
FT. WORTH, Bracken Co.
GULFPORT, Miss., Paine Supply Co.
HOUSTON, Precision Insulation Co.
INDIANAPOLIS, Central Supply Co.
JACKSON, Miss., Paine Refrigeration & Supply Co.
JACKSONVILLE, Ferber Sheet Metal Works
Florida Air Conditioners
Reynolds Aluminum Supply Co.
Southernair Distributors
KANSAS CITY, Mo., Central Supply Co.
Superior Distributing Corp.
KEWANEE, Ill., Mechanical Insulation Co.
KNOXVILLE, Tenn., Holston Air Conditioning Corp.
LAKE CHARLES, La., Solar Supply Company
LAREDO, Tex., Anderson-Sturgis Company
LITTLE ROCK, Gunn Distributing Co.
LOS ANGELES, Western Fibrous Glass Products Co.
LOUISVILLE, General Insulation & Roofing Co.
LUBBOCK, Tex., Morrison Supply Co.
MACON, Ga., Industry Insulation Co.
MEMPHIS, A. T. Distributors, Inc.
MIAMI, Crabtree Insulation Co.
Fiber Duct Dist.
Reynolds Aluminum Supply Co.
MYRTLE BEACH, S. C., Air Conditioning Supply
NASHVILLE, Central Air Conditioning & Heating Co.
Reynolds Aluminum Supply Co.
NEW ORLEANS, Eagle Asbestos & Packing Co.
Solar Supply Co.
NEW YORK, Eastern Steam Specialty Co.
OMAHA, Cardinal Supply & Mfg. Co.
ODESSA, Tex., Morrison Supply Co.
PASSAIC, N. J., Ral Supply Co.
PHILADELPHIA, John F. Scanlan, Inc.
PHOENIX, Kircher Asbestos & Rubber Co.
PITTSBURGH, Dravo Corp.
RALEIGH, N. C., Reynolds Aluminum Supply Co.
RICHMOND, Va., Automatic Equip. Sales Co., Inc.
Reynolds Aluminum Supply Co.
ROCHESTER, N. Y., Rochester Oil Burner Company
ROCKFORD, Ill., Mott Brothers Co.
SALT LAKE CITY, Bullough Asbestos Supply Co.
SAN ANTONIO, The Bracken Company
SAN DIEGO, Western Fibrous Glass Products Co.
SAN FRANCISCO, Western Fibrous Glass Products Co.
SAVANNAH, Ga., Reynolds Aluminum Supply Co.
SEATTLE, Western Fibrous Glass Products
SHREVEPORT, La., Frith Sales Co.
SOUTH BEND, Place & Co.
ST. LOUIS, Hollander & Co., Inc.
SULLIVAN, Ill., Lewie David, Inc.
TALLAHASSEE, Baker's, Inc.
TAMPA, Eagle Roofing & Art Metal Works, Inc.
TULSA, Okla., Ball Distributing & Engr. Co.
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WASHINGTON, D. C., Walter E. Campbell Co.
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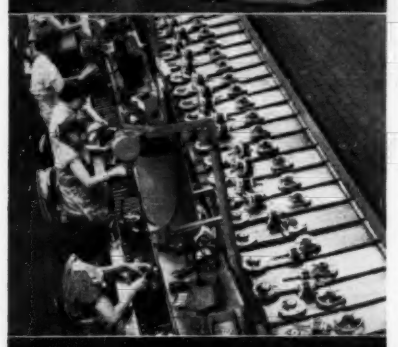
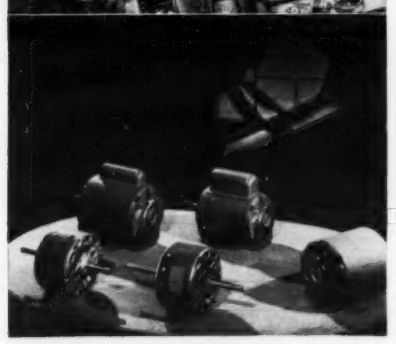
G-E ENGINEERS will help you tailor a Form G motor to meet your performance requirements . . . and provide the fast sample service you need to finalize the design and tooling of new models.

APPLICATION HELP from G-E engineers—specialists in air-conditioning motors—assures you of the best motor for your product commensurate with your specific performance requirements.



GENERAL ELECTRIC'S manufacturing capacity and multi-plant flexibility are geared for fast deliveries of volume orders. This assures you of constant availability of the motors you need.

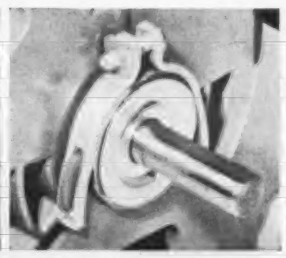


THE RIGHT MOTOR is available from General Electric now. The motors at left are typical of the complete line of years ahead G-E motors designed specifically for your air-conditioning requirements.

WITH THESE EXTRA-VALUE FEATURES THAT CUT
INSTALLATION . . . INVENTORY . . . SERVICE COSTS

QUICK CONNECT TERMINALS make wiring Form G motors easy and quick. Enlarged opening also saves hook-up time.

PLUG-IN TERMINALS on outside of G-E Type KSP and KCP 39-diameter motors permit fast, easy connection of motor leads.



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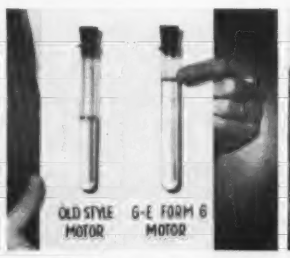
NEW! QUIET, SURE SWITCH. Special washer cushions switch click, maintains positive snap action under heaviest demands.



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LONG-LIFE STATOR—Mylar* polyester film, Formex† wire, heavy-duty bonding dip resists heat, moisture, and electrical stresses.

These General Electric Form G motor benefits will help keep your new design program on schedule, and improve your product as well. If you'd like help on a specific problem contact your nearby General Electric Apparatus Sales Office. For more information on Form G motors write for bulletins GEA-6424 and GEA-6533, to General Electric Company, Section 702-98, Schenectady 5, New York.

* Reg. trademark, DuPont Co.

† Reg. trademark, General Electric Co.

Progress Is Our Most Important Product

GENERAL ELECTRIC

NISA Plans Talks on Managerial, Technical Aspects of Motor Shop Operation May 17

ST. LOUIS—The first convention of the National Industrial Service Association outside the United States will be held in Montreal, Que., Can., May 17-20 at Hotel Queen Elizabeth.

J. Herbert Smith, president, Canadian General Electric Co., Toronto, Ont., will keynote a three-day program of talks on managerial and technical aspects of motor shop operation. He will speak at the opening session on Monday morning, May 18.

Others who will address the opening meeting are J. Arthur Turner, Jr., Tampa Armature Works, Tampa, Fla., whose topic will be large motor repair problems; Walter Seline, Ferranti-Packard Electric Co., Toronto, who will discuss the servicing of transformers; and William M. Hogue, Larsen-Hogue Electric Co., Los Angeles, whose subject will be the management of independent electrical equipment service units.

Insulation Materials Will Be Discussed

Insulation materials will be discussed by speakers at the session on Tuesday morning.

R. L. Bishop of Canadian General Electric Co. will talk on general insulation practices; R. H. Thielking, Schenectady Varnish Co., Schenectady, N. Y., will discuss varnish applications; Dr. J. B. Toogood, Union Carbide Corp., will review silicones; Dr. Henry Lee, Epoxylite Corp., El Monte, Calif., will talk on epoxy resins; and R. H. Pitfield, Phillips Electrical Co., Ltd., Toronto, will discuss magnet wire developments and techniques.

Shop Management Problems Will Be Reviewed

Various shop management problems will be reviewed at the Wednesday session, May 20.

Horace Barks, of Horace Barks Publications, St. Louis, will discuss the topic "Advertising As It Affects Repair Shop Operators"; C. A. Laverty, electrical superintendent, Anglo-Canadian Pulp & Paper Mills Ltd., Quebec, will talk on "What Constitutes a Good Electrical Repair Shop from the Customer's Viewpoint"; Arthur C. Roe, author of electrical textbooks and now a staff engineer of NISA, will review the engineering facilities of the NISA headquarters office; and Joseph W. Cavataio, Illinois Electric Works, East St. Louis, Ill., will discuss shop salesmanship.

'Shop Talk' Discussion Groups

Monday and Tuesday afternoons will be devoted to "shop talk" discussion groups which will be presided over by panels composed of the day's speakers and other industrial authorities. Topics to be discussed include transformers, management, large motors, small motors, and insulation.

A cabaret dinner-dance will entertain delegates and women guests at the Hotel Queen Elizabeth on Monday night. On Tuesday night, the more than 60 exhibitors who will display equipment and materials used and sold by electrical equipment service shops will be honored with a "night." The convention will end with a dinner on Wednesday night at which J. H. McQuaig, McQuaig Institute of Executive Training, will be the chief speaker.

Delegates will tour electrical equipment service shops in the Montreal area on Wednesday afternoon.

The "International Convention" opens on Sunday evening with a reception for NISA President Paul M. Sievert, Sievert Electric Co., Chicago.

Advance registrations are being made through the association's national headquarters at 7730 Carondelet Ave., St. Louis 5, Mo.

Recent NLRB Actions

Unlawful Hiring, Firing, and Discouraging Members from Joining Union Are Objects

WASHINGTON, D. C. — The National Labor Relations Board has ordered a Salem, Ore. plumbing and heating firm and a union to cease giving effect to provisions of any agreement which unlawfully conditions the hire or retention of workers upon clearance or approval by the union.

Named in the order were Atlas Plumbing & Heating, Inc. and Plumbers & Steamfitters Local 347, AFL-CIO. In addition, the NLRB ordered that:

The company must stop encouraging membership in the union.

The union must stop causing the company to discriminate against employes.

Both must not restrain or coerce employes in their rights to engage in or refrain from concerted activities. And both must jointly and severally offer back pay to the charging individual.

Charges were filed by an individual and by the Williamette Association of Plumbing & Heating Contractors, Inc. An all-party stipulation was entered into last Nov. 24 and approved by the NLRB last month.

In another action, NLRB Trial Examiner Henry S. Sahm recommended in an intermediate report that P & W, Inc., Vicksburg, Miss., cease discouraging membership in Local 619 of the United Association of Plumbers & Pipefitters, by discharging any of its employes.

The examiner also recommended that the company stop interfering with, restraining, or coercing its employes in the exercise of their rights to engage in or refrain from concerted activities, and offer reinstatement and back pay to the two charging parties.

In another intermediate report, Trial Examiner Charles W. Schneider recommended that W. L. Rives Co., Jacksonville, Fla., cease discouraging membership in Sheet Metal Workers International Association, AFL-CIO, or encouraging membership in the United Association of Journeymen & Apprentices of the Plumbing & Pipefitting Industry, AFL-CIO, and its Local 234.

Among other things, Schneider also recommended that the firm offer reinstatement and back pay to six individuals. Charges were filed by the Sheet Metal Workers.

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REFRIGERATION, AIR CONDITIONING
and HEATING UNIT NEEDS . . .

Specify Quality-Controlled
PHELPS DODGE COPPER TUBE!

- All tempers and sizes for use in original equipment.
- Straight length tube tempered to meet your bending and expanding specifications.
- Quality-controlled throughout manufacture to assure finest tube properties.
- Tubes degreased and capped, or dehydrated and sealed, if required.
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First for Lasting Quality from Mine to Market!

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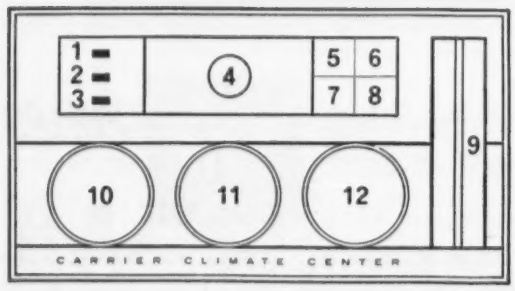
SALES OFFICES: Atlanta, Birmingham, Ala., Cambridge, Mass., Charlotte, Chicago, Cincinnati, Cleveland, Dallas, Dayton, Denver, Detroit, Fort Wayne, Greensboro, N. C., Houston, Indianapolis, Jacksonville, Kansas City, Mo., Los Angeles, Memphis, Milwaukee, Minneapolis, New Orleans, New York, Philadelphia, Pittsburgh, Portland, Ore., Richmond, Rochester, N.Y., San Francisco, St. Louis, Seattle, Washington, D.C.

NOW SOMETHING BIG HAS



THE CARRIER CLIMATE CENTER REPORTS:

1 heating or cooling cycle; **2** fan operation; **3** night setback; **4** indoor temperature setting; **5** filter cleanliness†; **6** pilot light operation†; **7** condensate operation†; **8** compressor performance†; **9** outdoor temperature; **10** time and night setback indicator; **11** barometric pressure, and **12** indoor temperature and humidity.

† Optional

HAPPENED TO AIR CONDITIONING!

The Revolutionary New Carrier Climate Center

gives homes new mastery of indoor climate ...another spectacular Carrier first!

Ever sat behind the controls of a plane? Or stood on the bridge of a ship? Then you have a fair idea of how you'll feel when you stand in front of the Carrier Climate Center.

This handsome 8-by-14-inch wall panel which installs between studs is more than a weather bureau . . . which it is. More than a control board . . . which it is. More than an automatic monitor that reports on the operation of a Carrier air conditioning system . . . and it's that, too.

The Climate Center is the heart of a Carrier air conditioned Weathermaker* Home. Here your customer is master of the well-being of his family. He can see the performance of his system—and be able to precisely control it. See what the weather is outside—and what it will be like tomorrow. And see new ways to effect economies. One example: a timer that can be preset to automatically lower the temperature in the house during sleeping hours. Another: a warning light that signals when replacing filters will improve operating efficiency.

Now your customer can watch—as well as experience—perfect climate control in operation. He can custom-tailor indoor climate to the preferences of his family. And be sure that he's always getting the best from his system—the all-season comfort, the cleanliness, the health that truly fine air conditioning provides.

CARRIER DEALERS HAVE A 1-2-3 PUNCH!

The greatest name in air conditioning to sell . . . plus a complete line that permits you to air condition any home . . . plus the Carrier Climate Center—the most exciting new merchandising idea in years! Get the details on a Carrier franchise today. The Carrier distributor to contact is listed in the Yellow Pages.

* Reg. U. S. Pat. Off.

MORE PROOF OF
BETTER AIR CONDITIONING FOR EVERYBODY EVERYWHERE

Carrier

Williamson

Adds Six Larger Furnaces to Line

CINCINNATI—The Williamson Co. has added six larger size units to its "Special Series" furnace line.

Gas types will now be manufactured in 175,000 and 200,000 B.t.u. input models for "Hi-Boy" and counterflow styles. New 189,000 B.t.u. input models for oil will also be offered in these two styles.

Sizes ranging from 75,000 to 150,000 B.t.u. input will continue to be produced. Twenty-five Special gas and 11 Special oil units are now in the line.

The new Williamson units, as well as the present models, will feature "Seal-Tite" cabinet design, the company's new styling concept. "Engineered throughout for optimum air flow, the new design was introduced to make the Special furnaces dust-tight and leak-tight," the announcement said.

BIGGER CAPACITY gas and oil furnaces in "Seal-Tite" cabinet are added to Williamson's "Special Series." They are available in "Hi-Boy" and counterflow models.

"As with the rest of the Special furnace line, the new models are completely assembled, internally wired, and fire tested at the Williamson factory," it was noted. "In addition, they are convertible from oil to gas.

"Especially designed for use with cooling, each unit is easily converted into a 'Yearound' air conditioner. The cooling coil and outdoor air-cooled condenser can be added when the furnace is installed, or later.

Westinghouse

Bows 40, 50-Ton Single Compressor Redesigned Packaged Conditioners

STAUNTON, Va.—Two completely redesigned packaged air conditioning units (LU-411 and LU-511) rated at 40 and 50 tons' cooling capacity, have been introduced by Westinghouse Electric Corp.

These single-compressor units become part of the Westinghouse packaged air conditioning line for commercial and industrial applications that includes ten models rated from 3 to 50 tons.

"Major features of these new designs are application flexibility and compact size," it was stated. "The units use separate fan sections for vertical or overhung mounting with multiple fan discharges to fit any application.

"This separate fan section concept provides five different options for mounting the fan section and means that any desired air flow pattern can be obtained, none of which requires any field modification. In addition, these units can be modified to make water connections on either end, and to locate the control panel on two alternate sides."

Both models in the new design are 36 in. wide, compared with widths 4 ft. and even larger on previous models. The units are shipped in two sections for shipping convenience. The largest section is 76 in. high in the 40-ton size and 83 in. in the 50-ton size. The cooling sections are 110 in. long and 36 in. wide in both sizes.

Constructed with channel and angle frames, the new packaged units are completely enclosed with flush panels bonderize-finished in charcoal grey.

These single compressor packaged units are available with three sizes of water-cooled condensers; or without a water-cooled condenser for air cooled or evaporative condenser applications. In addition, each unit has six-row evaporator coils. A variation in starter-type and fan motor horsepower is also available. Standard units are available from stock.

"A major advantage of the large packaged air conditioners for commercial and industrial use is that complete air conditioning can be accomplished on an incremental basis and systems need not be oversized to allow for future plant additions," the company said.

Accessories available with either unit include one and two-row steam distributing tube-type heating coils, two-row water coils, and filter sections, it is noted.

Inland Empire Group To Promote Cooling

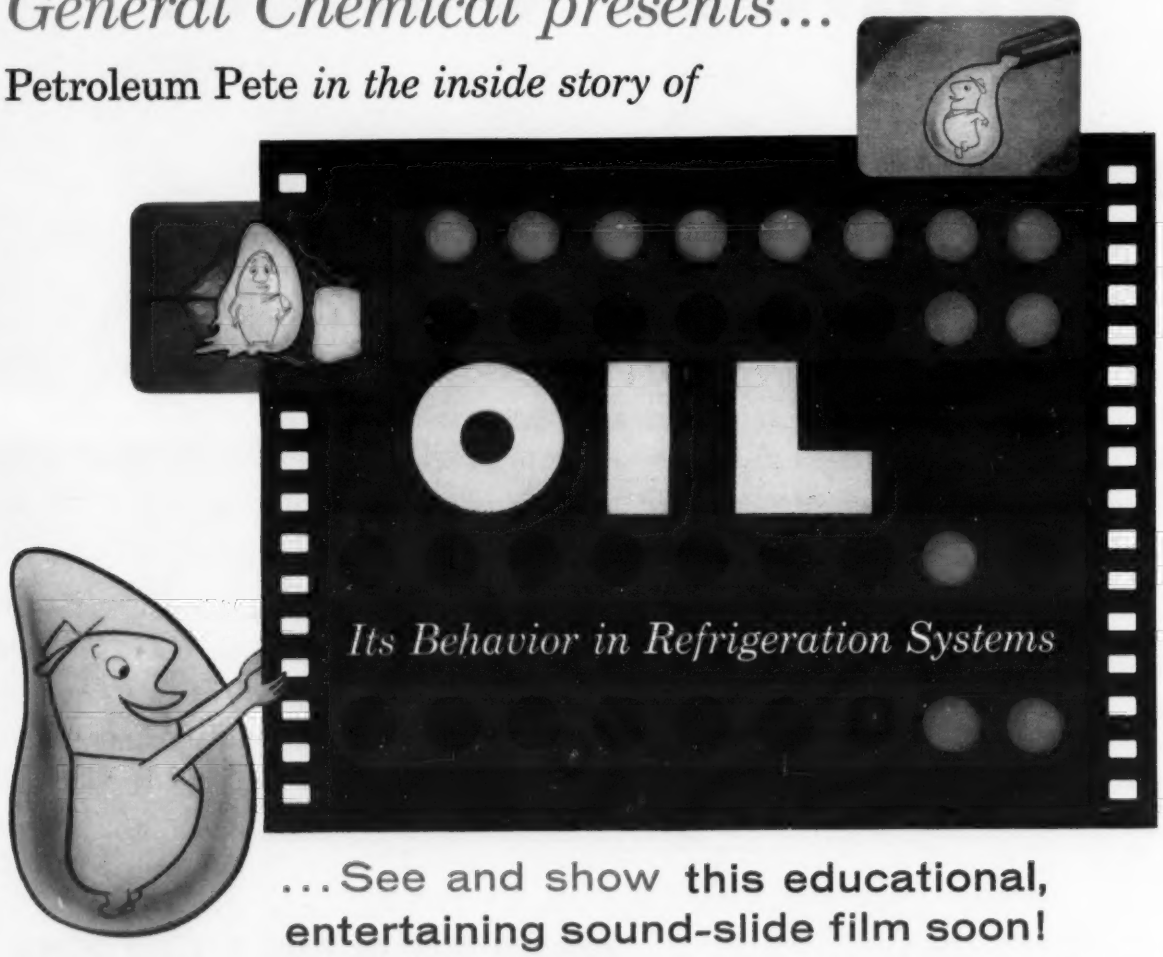
SPOKANE, Wash. — An advertising and sales program to promote room and central refrigerated air conditioning units is being developed by a newly-organized air conditioning committee, according to Washington Water Power Co.

This is the first time that such a program has been undertaken in this area, it was stated.

The committee is hoping to capitalize on last summer's long hot spell, the report said. The campaign is designed to "break with the weather."

General Chemical presents...

Petroleum Pete *in the inside story of*



...See and show **this educational, entertaining sound-slide film soon!**

Here is the inside story on the behavior of oil in refrigeration systems told in a full-color, sound-slide film. This authoritative film was prepared under the technical direction of Dr. Walter O. Walker, "Genetron" Consultant and Dean, Division of Research and Industry, University of Miami.

Fact-packed! Entertaining! Informative! General Chemical's new sound-slide film describes the important properties of refrigerating oil and how they are affected by extremes of temperature and pressure inside refrigeration systems. It answers clearly and simply such questions as: What causes oil breakdown and its destructive by-products —sludge and corroding acids? What are the basic problems experienced with oil in the compressor and other parts of the system? How are they overcome? What happens when oil mixes with the refrigerant? What causes wax separation? And many other important topics are covered!

General Chemical invites any group which is interested in the operation and maintenance of refrigeration systems to see and use this film.

Refrigeration Service Engineers Society Chapters are invited to show the film at their meetings.

Refrigeration and air-conditioning wholesalers, equipment manufacturers and contractors are encouraged to make full use of it for briefing personnel and to show it at meetings for customers. The film is also available to technical schools and colleges offering refrigeration courses.

Mail coupon now!

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GENERAL CHEMICAL DIVISION
ALLIED CHEMICAL CORPORATION
40 Rector Street, New York 6, N. Y.

Allied Chemical

Without cost or obligation, I would like to have a print and record of "OIL—Its Behavior In Refrigeration Systems" on loan for showing (state preferred dates) _____

☐ If you do not have a sound-slide projector, check here and a General Chemical representative will arrange a showing for you.

Name _____ Position _____

Company _____

Where film will be shown (chapter meeting, staff meeting, etc.) _____

AR-49

Street _____ City _____ Zone _____ State _____

NEW Carrier "CANT-CLOG"* SPRAY NOZZLE

Revolutionary new self-cleaning spray nozzle reduces maintenance and maintains high system capacity. Ideal for original equipment or replacement on cooling towers, air washers, spray-coil units, etc. Low in cost. Installed in seconds. Available as replacement caps, or complete nozzles. For ratings and information, write Carrier Corporation, Syracuse, New York. * Patent Pending

McQuay Profits, Sales, Unfilled Orders, Shipments Set Record; Expansion Planned

MINNEAPOLIS — Sales, unfilled orders, shipments, and profits of McQuay, Inc. are at an all time high, it was revealed by Byron E. James, president of the air conditioning, heating, and commercial refrigeration manufacturing firm.

The company recently completed the largest month in its history with sales in March at more than $2,200,000, the first time the two million figure has ever been reached, and sales for the first quarter will also be the largest in the company's history, James said.

Sales for 1958 were at a record $12,464,301 and net income was $381,026, equal to $1.20 a share on the company's common stock.

Plans are in the works, James also said, to build a new headquarters office and engineering research center in the Minneapolis area within three years.

The company has about 168 salaried employes here.

In his 1958 report to stockholders, James said 65% of dollar volume came from products that had been redesigned or developed within the past five years.

He credited the 10.5% gain in gross sales in a recession year to "continuous engineering advances in new product lines, improved manufacturing techniques, and an intensified sales program made possible by an expanded sales force."

Dollar volume of American Automatic Ice Machine Co., a wholly-owned subsidiary, was 47% higher than in 1957.

Confident McQuay will surpass 1958 sales this year, James said new business booked in March amounted to $2,200,000, highest for any month in the company's history. Shipments totaled $1,650,000.

"It looks now as though April may be even better, with shipments at or near the $2,000,000 mark," he added.

A factor in the sales upsurge has been the redesigned "Seasonmaker" line of room air conditioners, it was pointed out.

James said successful sales of 50,000 shares of common stock recently added about 500 new shareholders to the 576 of record at the end of 1958.

Proceeds will help pay for a 40,000-sq. ft. addition to the Faribault (Minn.) plant and a 60,000-sq. ft. addition to the Grenada (Miss.) plant. Both are to be completed late this year.

Engineering Scholarships Offered by Trane for Third Consecutive Year

LA CROSSE, Wis.—For the third consecutive year, The Trane Co. is offering up to eight $500 two-year pre-engineering scholarships to graduating seniors in this area.

Trane initiated the program in 1957 to encourage young men to choose engineering technician careers with subsequent employment with the firm. The scholarship program is being conducted in cooperation with La Crosse State college.

Bulk Tank--

(Concluded from Page 1, Col. 4)

will include a first report of the number of installations in Canada.

Earlier annual figures were 57,386 on Jan. 1, 1957; and 29,885 on Jan. 1, 1956. The widespread adoption of the farm bulk system of milk handling "has been one of the most rapid and revolutionary changes within the dairy industries in recent years," the announcement noted.

Figures on farm tank installations in three western states—California, Nevada, and Oregon—show no increase in 1958, and in several other states only slight 1958 increases are apparent. The survey's sponsors do not regard these instances as necessarily indicating that market saturation points have been reached or are imminent.

The largest dairy state—Wisconsin—leads all other states with a reported 14,457 installations, an increase of 3,000 within 1958.

ARI Meeting--

(Concluded from Page 1, Col. 2)

purpose.

It also recommended election of three vice presidents instead of one and elimination of the restriction limiting membership on the board of directors to one representative per company.

Schedule for the coming meeting calls for a board of directors meeting on Sunday, May 3, general meetings of membership on Monday and Tuesday mornings, and product section meetings on Monday afternoon. General meeting will continue into Tuesday afternoon if necessary to complete all business. If not, the board of directors will meet again Tuesday afternoon. If so, the board will meet Wednesday morning.

Product sections, at their meetings, will consider adoption of amended product scopes as recommended by a product scope definitions committee. Product sections not meeting at Hot Springs will consider the amendments at their first meeting after May 4.

Only other functions planned are the annual dinner Monday evening and a cocktail party Tuesday evening.

"And now, a word from my sponsor"

says Garry Moore, star of the Garry Moore Television Show, seen Tuesdays at 10 p.m. E.S.T., CBS-TV Network

"I'm Garry Moore, and this is PPG's Glasfloss Fiber Glass Safety-Grille Filter. I want to tell all you gentlemen . . . and any ladies who happen to be listening . . . a couple of very important reasons why the Glasfloss Safety-Grille Filter offers you the most for your money in any heating or air conditioning installation."

"See this? The old metal grille has been eliminated. The Safety-Grille chipboard won't nick hands or cut fingers because there are no sharp edges. This is an important safety angle for maintenance men who must handle hundreds of filters when making a filter bank change."

"This should happen to a filter? Just in case you ever bent a Glasfloss Filter like this, you'd find it would snap back in shape. That's because of its one-piece chipboard construction. No metal grille to get bent out of shape. There's less chance of filter damage in transit, storage and handling."

"Efficient? You bet! But don't take my word for it. Try Glasfloss Fiber Glass Safety-Grille Filters yourself and see how well they perform in actual service. Your local Glasfloss Distributor or PPG Warehouse carry the complete range of sizes. Call them for service, and tell them Garry sent you."

Glasfloss® Safety-Grille* Filters are a product of the Fiber Glass Division of Pittsburgh Plate Glass Company

Sales Offices are located in the following cities: Charlotte, Chicago, Cincinnati, Cleveland, Detroit, Houston, Los Angeles, Minneapolis, New York, Philadelphia, Pittsburgh and St. Louis

*Trademark

FIBER PPG GLASS PITTSBURGH PLATE GLASS COMPANY

2 Electronic Control Centers Will Provide 'Perfect Climate' In Chase Manhattan Bank

NEW YORK CITY — Engineers operating a pair of automatic control centers will electronically control the comfort of 15,000 office workers and an estimated 10,000 daily visitors in what is described as "the world's largest air conditioned office building," Chase Manhattan Bank's new headquarters in downtown Manhattan.

The 60-story tower is now under construction and is scheduled for completion in 1960.

Two "Supervisory Data Centers" — made by Minneapolis-Honeywell Regulator Co. and linked to Honeywell thermostats, valves, and sensing devices at thousands of key points throughout the skyscraper — will enable two engineers to provide by remote control what M-H officials term "perfect indoor climate," the company announced.

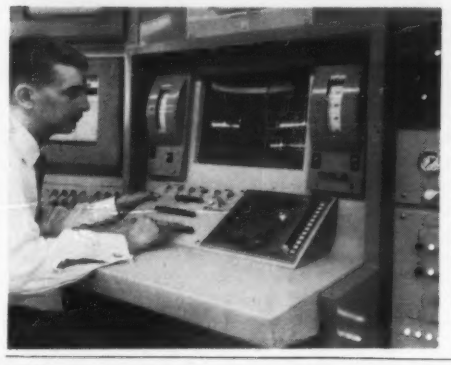
The centers consist of miniaturized consoles and panels housing data-handling systems providing these four main functions: logging and checking of temperature, humidity, and operating efficiency at key points from five floors below street level to the roof; adjustment of all main controls; stopping of fans and pumps monitored by pilot light indications of these operations; and the investigation and handling of occupants' complaints.

Twenty miles of electric wiring and 52 miles of pneumatic tubing will bring to the fingertips of the controlling engineers' temperature reports relayed from 450 space thermostats placed to "second-guess" the efficiency of 2,466 other thermostats which regulate the operation of 3,982 valves.

Meanwhile, in nearly 2,000 offices and working spaces around the periphery of each floor, occupants will enjoy individual room temperature control.

"The electronic thermostats used in the interior areas of the building are 100 times more sensitive than the human body," it was stated.

The Data Center engineers will have constant knowledge of how heating and cooling equipment is responding to demands of bank employes and tenants operating hundreds of private thermostats.



A PAIR of pushbutton consoles like this will control the comfort of 15,000 workers and an estimated 10,000 daily visitors in Chase Manhattan Bank's new headquarters in downtown Manhattan. Diagrams of heating and air conditioning systems for each of the tower's 60 floors will be projected onto the "Selectographic" screens before the eyes of engineers.

The center includes the new "Selectographic" console, which projects detailed slides containing system diagrams, floor plans, and other maintenance data about any area under scrutiny onto an 11 by 15-in. screen before the operator's eyes.

Fan controls will be grouped on an adjoining module complete with name plates, pushbuttons, and pilot lights. Also on the panel will be stop buttons and pilot lights for 78 fans and 58 pumps and 346 remote control point adjustors.

"Whenever the building engineer pushes a button to switch a particular slide on the screen, the operating controls on the console are simultaneously switched to the system represented on the slide," it was pointed out. "By touching additional buttons, he then can read and adjust temperatures in that area without affecting other parts of the building.

"Then, by the turn of a dial, the operators will be able to supply needed comfort factors on a wholesale basis to areas of the building where retail distribution of varying requirements may call for operational changes of fans, dampers, heating and cooling coils. They also will be in remote control of temperature settings in 246 areas of the building not regulated by individual room thermostats."

First Job Requiring 2 Data Centers

This is the largest comfort control job in the history of the heating-air conditioning industry, M-H officials claim, and the first requiring two Supervisory Data Centers. The building will be cooled by a 9,140-ton air conditioning system.

At the heart of the cooling system are four huge centrifugal compressors driven by steam turbines, a pair of which—with 3,000-ton capacity—are said to be the largest of their type ever to be installed.

"To rid the building of tremendous heat loads when the cooling system is in operation, water cooling towers covering most of the roof will be cooled by fan-driven blasts of air," it was noted. "Cool water will be piped from the refrigeration machines to 6,745 cooling units in all parts of the building, and the same units will heat the building with hot water in the winter."

So sensitive and responsive are the controls that will "feel" and regulate comfort conditions throughout the complex, it would actually be possible to

(Concluded on next page)

HOW TO MAKE SEASONAL BUSINESS INTO YEAR 'ROUND PROFITS...

Gaffers & Sattler Furnaces & Air Conditioners

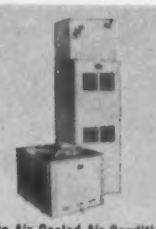
You'll wonder where "the slack season" went when you sell Gaffers & Sattler Furnaces and Air Conditioners. They're sales builders that laugh at the weather...make every day a profit day.

There's a large selection of Gaffers & Sattler Furnaces and Air Conditioners in a wide range of capacities for homes or offices or factories...for new buildings or old. Easy to install...advance designed...economically priced, these Gaffers & Sattler products build volume sales fast. Quality-controlled through every step of manufacture...thoroughly tested in our research and development laboratories, these furnaces and air conditioners assure your customers of dependable performance, long trouble-free service. So, bank more profits with this top money-making line. Contact your jobber or write today to:

GAFFERS & SATTLER, 12611 So. Crenshaw Blvd., Hawthorne, Calif.
Manufacturers of Gaffers & Sattler Air Coolers, Automatic Gas Ranges, Furnaces, Air Conditioners, Water Heaters and Gas-fired Suspended Unit Heaters.

Upright Forced Air Furnaces
Featuring Diamondglas Heat Exchanger 80-100-120-140-160-200,000 BTU. Other upright models, 47-60-70-75*-80*-86*-90-100*-120,000 BTU* (*also available for air conditioning). Note: 47, 60, 140, 160 & 200 are equipped for AC.

Self Contained Refrigerated Air Conditioners
3 ton model, includes evaporator and condensing unit.



Remote Air Cooled Air Conditioners
2-3-4-5 ton models, fully charged, with precharged refrigerant tubing.

Counterflow Forced Air Furnaces
80-105-120-140-160,000 BTU. Also available equipped for air conditioning.

Gas-fired Suspended Unit Heaters
Fan & Blower* types 25-50-75-100-125-150-175-200-225,000 BTU. All feature Diamondglas Heat Exchanger. *Can be connected for use with air conditioning.

Horizontal Forced Air Furnaces
80-100-120-140,000 BTU. Also available equipped for air conditioning.

GAFFERS & SATTLER
A PRODUCT OF
UTILITY
APPLIANCE CORP.

Trying to find the right man for a hard-to-fill vacancy—the NEWS' Classified Ads are read by your man.

Place your ad today!

have one unit area performing a cooling function while the one next to it was acting as a heater, M-H engineers reported.

One Supervisory Data Center on the 11th floor will control comfort in the five basement levels and the first 21 floors. Another, on the 31st floor, will handle the upper stories.

"Almost every element of the building's heating and air conditioning functions will be controlable by the operator, who is provided with periodic records of thousands of temperature readings, or specific readings on demand," the company said. "Audio and visual alarms will alert him to extreme or unsafe conditions at key points throughout the buildings.

Operator Can Control 78 Fans, Pin-Point Cause of Troubles

"At the operator's elbow will be knobs and switch adjustments enabling him to stop 78 fans throughout the building and to compensate for heavy cooling loads as the building's occupancy and use change. Also, he will pin-point the cause of almost any mechanical trouble which may develop."

Supervisory Data Centers were developed by Minneapolis-Honeywell and to date approximately 300 major installations have been made, or are under construction for office, hotel, hospital, and industrial building projects in the U.S., Canada, and Mexico, the manufacturer stated.

The Chase Manhattan building fronts on a raised two-and-a-half acre open plaza with sunken pool in a "superblock" bounded by Nassau, Liberty, William, and Pine streets in the financial district. Steel work on the building, which will be a rectangular tower with exterior metal columns and metal and glass walls is now progressing.

Architect is Skidmore, Owings & Merrill, and Turner Construction Co. is prime contractor. Jaros, Baum & Bolles is mechanical engineer and Raisler Corp.-Kerby Saunders, Inc., operating jointly, are mechanical contractors.

'Preserving, Promoting Contract System' To Be MCAA Topic At Washington Meeting

NEW YORK CITY—The 70th anniversary convention of the Mechanical Contractors Association of America will get under way at the Shoreham hotel in Washington, D. C. on Tuesday morning, April 28.

One of the major addresses of the meeting will be given at the second general session Wednesday morning by Peter T. Schoemann, general president, United Association of Journeymen & Apprentices of the Plumbing & Pipe Fitting Industry. He will speak on "Preserving and Promoting the Contract System."

Probably the hottest topic on the agenda will be the discussion of the report of the Merger Study Committee.

A resolution empowering the committee to meet with a like committee of the National Association of Plumbing Contractors to explore the possibility of a merger was approved at the last MCAA convention.

The business session will be followed by the third general session, starting at 10 a.m., during which Erik B. J. Roos, consulting engineer, Seelye, Stevenson, Value & Knecht, New York City, will tell "Why We Selected Absorption Units For the Central Refrigeration Plant at New York International Airport."

At the same session, E. R. Ambrose of American Electric Power Service Corp., New York City, will speak on "The Heat Pump."

In another address, at the final general session on Friday morning, Dr. Clayton Allen, senior consulting engineer, Bolt, Beranek & Newman, Inc., Cambridge, Mass., will discuss "Noise Control."

B-W Acceptance Opens Branch In Seattle

CHICAGO — Opening of a branch office in Seattle by B-W Acceptance Corp. was announced by James T. Brown, president.

The company, subsidiary of Borg-Warner Corp., is the financing agency for York air conditioners and Norge home appliances.

Ronald T. Dickey will be manager of the Seattle branch, 1258 First Ave., S. The office will serve dealers and their customers in 18 eastern Washington counties.

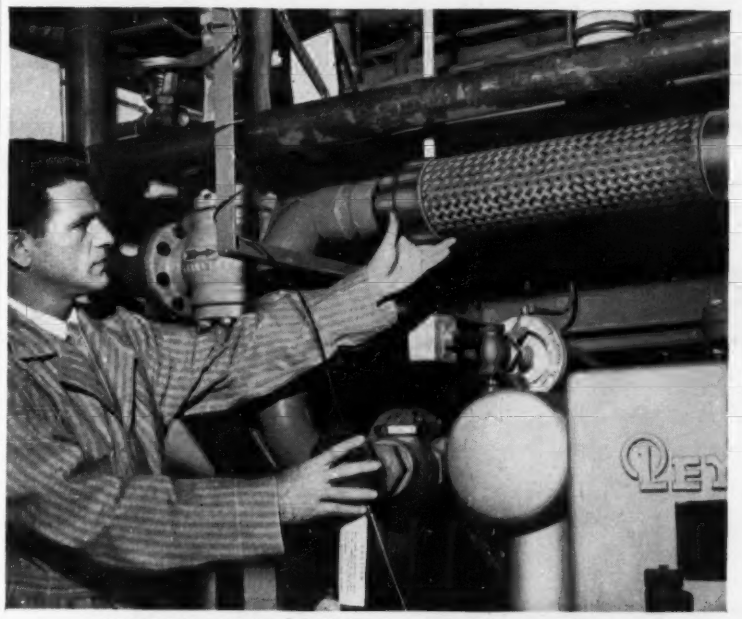
Labor Dept. Reports On Number of Men In Training for Trades

WASHINGTON, D. C.—A report on the number of apprentices registered with the Bureau of Apprenticeship & Training of the U. S. Dept. of Labor as of Dec. 31, 1958, was released at the Building & Construction Trades fifth annual conference here.

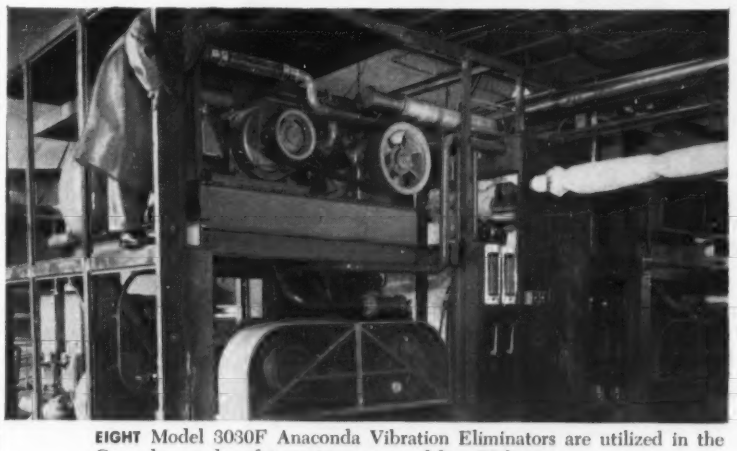
The report showed that the plumbing and pipe fitting trades have 22,106 young men now in training under the jurisdiction of 628 registered Joint Apprenticeship Committees.

The plumbing and pipe fitting field ranks second in the over-all number of registered apprentices in the construction industry. Only the carpenter trade reported more registered apprentices (23,977).

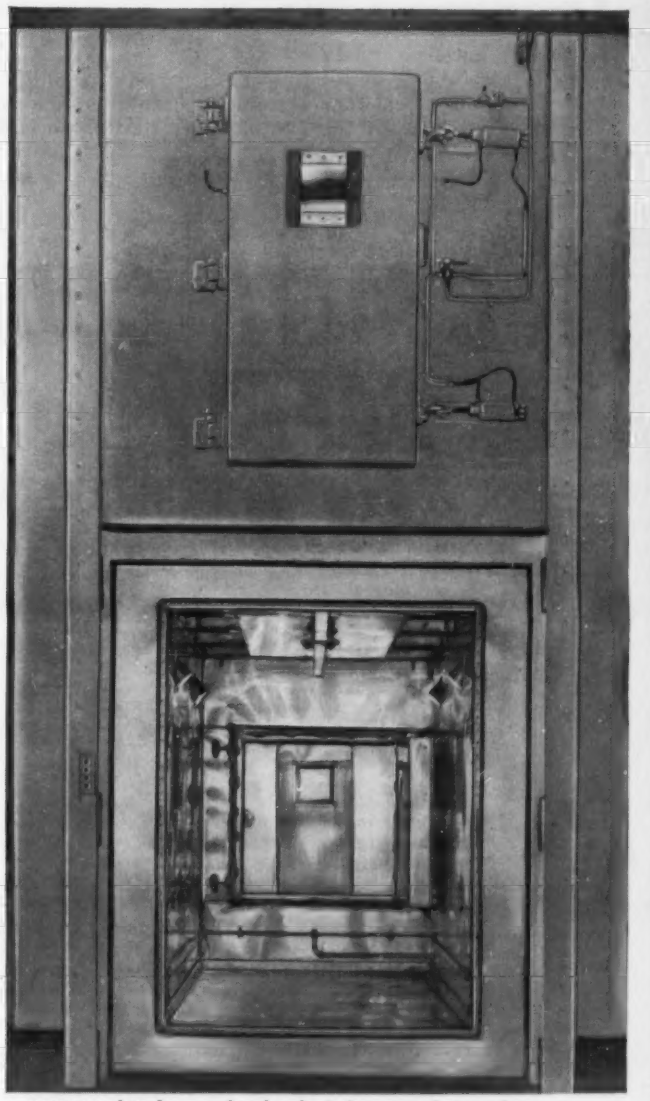
The report also disclosed that the sheet metal trade has 11,258 registered apprentices and 273 registered Joint Apprenticeship Committees.



ONE OF THE FOUR Model 4040F Anaconda Vibration Eliminators used in the vacuum system handling air under a vacuum of 3.5 mm. of mercury.



EIGHT Model 3030F Anaconda Vibration Eliminators are utilized in the Conrad cascade refrigeration system of four 50 horsepower compressors—two units with Freon 13 refrigerant maintain minus 120 degrees F., and two units with Freon 22 refrigerant cool the Freon 13 condenser.



A WALK-IN altitude test chamber built by Conrad, Inc., for a leading missile manufacturer. The 1200-cu. ft. chamber has a temperature range of 650F to minus 120F, can simulate altitude conditions from sea level to 120,000 ft.

To keep space-age test units working full time, Anaconda VE's guard refrigeration and vacuum lines

The extremely high cost of interrupted test schedules, if environmental test equipment fails due to cracked tubing from vibration, makes Vibration Eliminators excellent insurance. Conrad, Inc., environmental test chamber manufacturers of Holland, Michigan, designed and built the big chamber above. Anaconda Vibration Eliminators have been in use on Conrad test equipment for more than six years—have made a real contribution to dependable test equipment.

In air conditioning and commercial refrigeration, too, the cost of failures from vibration-caused tube cracking can run high, in reduced business volume, and loss of perishables. Why take chances with your customers' money—and your reputation? Use Anaconda Vibration Eliminators in every job. They're good business insurance.

VE'S ARRIVE CLEAN, READY TO USE—They're sealed in polyethylene envelopes or protected with end caps—packed in sturdy, easily identified boxes. When you open the package, your quality VE's are factory-fresh—clean inside and out—ready to install in the lines.

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5914B

ANACONDA®
VIBRATION ELIMINATORS

Proposed Frozen Food Code Would Require Standard 0° F. From Packer to Consumer

CHICAGO—Preview of a proposed frozen food code was a highlight of the 18th annual meeting of the National Association of Frozen Food Packers at the Conrad Hilton hotel here.

A standard zero temperature for frozen food products through every stage from the packer through retail sale would be required by state laws under the set of "tentative standards" proposed by state food and drug officials and the frozen food packing industry.

The zero temperature requirement and other parts of the code were unveiled at two sessions of the NAFFP meeting.

C. S. Brinfield, chief of the Div. of Food Control for the Maryland State Dept. of Health and chairman of the committees drafting the proposed code, said his committee is "at least a year off" from finishing it.

The Association of Food & Drug Officials of the United State (AFDOUS)—composed of state food and drug officers—is drafting the code with the cooperation of NAFFP. Other segments of the industry are being consulted as the sections dealing specifically with their operations are considered.

Main reason for the joint effort is to forestall the enactment of conflicting state codes for frozen food handling which might make interstate shipment of frozen food products difficult or impossible, it was explained.

When finally approved by the AFDOUS, the code will provide a guide to states which are considering the enactment of control laws either through legislation or by administrative action of their departments of health. Several states have already indicated they will adopt the code when it is completed.

In describing some of the tentative regulations being considered by his committee, Brinsfield assured the frozen food industry that "nothing is going into this code that hasn't been proven through research as practical and workable."

He said the main goal of the committee was to design a code to help build more customer confidence in frozen foods.

At one session, Brinsfield previewed sections of the proposed code which would govern plant layout and design, design and construction of equipment, bacterial content of frozen prepared and precooked food products, and frozen food transportation and storage.

At the other session, sections of the code dealing with distribution and retailing of the products were sketched out.

Only firm recommendation previewed for any of these groups was the provision for zero storage, transportation, and retail sale.

On the panel discussing the proposed code with Brinsfield were Richard M. Page, Arrow Food Distributors; Les Hickox, Tyler Refrigeration Corp.; Harold Provda, The Grand Union Co.; and Mrs. Helene Nemeth, Model Food Center, Inc. Each commented for his segment of the industry on the early code recommendations.

Each agreed his part of the industry would comply with the zero recommendation and said there is also agreement that a uniform code will be helpful to all concerned.

On a panel, warehousemen, packers, truckers, and the railroaders all pledged the cooperation of their parts of the industry in framing and complying with the code.

More specific recommendations came from this session; some of the tentative requirements and comments from the panel:

Transportation

1. The new code will probably make it necessary for shippers to pre-cool their cars and trucks—but probably not all the way to zero.

2. A strict temperature test—at the point of highest temperature — immediately before and after loading is another anticipated requirement.

Speaking on behalf of the trucking industry, William O. Gohlke, Federal Trucking Co., said his industry is pressing for rigid controls. He said the American Trucking Association's Refrigerated Carrier Committee has already done much work to set up a system of self-policing.

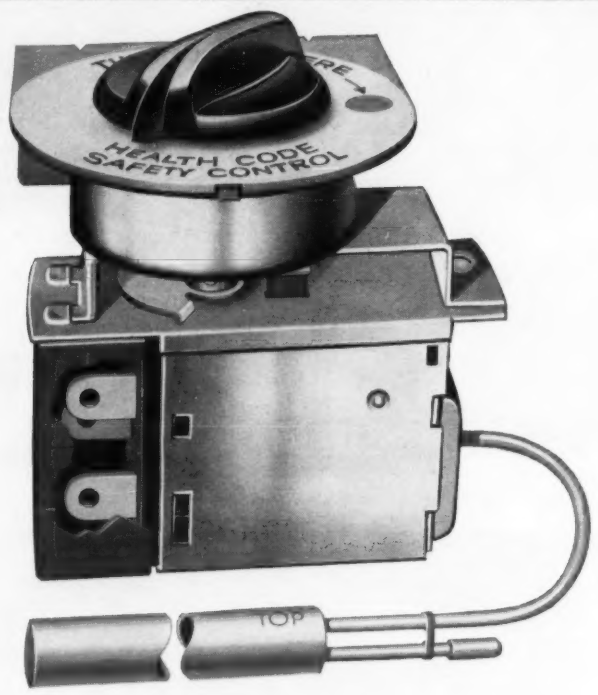
One important reason for the uniform code, he said, is the threat of a series of conflicting state laws which would make continuous interstate shipment of frozen foods difficult or impossible.

The only reservation Gohlke—or anyone else on the panel—expressed was about the immediate requirement of a zero shipping temperature. He said truckers would rather have the code specify a 10° temperature at the outset and improve it in a year or so. He also urged that

NEW HEALTH CODE SAFETY CONTROL

for coin vending machines dispensing cold or hot items

RANCO F11



Recent changes in U. S. Sanitation Ordinance and Code suggest that vending machines with storage compartments for readily perishable food and beverage items be equipped with controls to insure maintenance of temperature *not higher than 50° F.* (cold items) nor lower than 150° F. (hot items). Only exception is a 30-minute recovery period following loading or servicing, after which time the system must have returned and be in normal temperature operation.

Ranco has developed two controls (F11-1000 for cold vending and F11-1200 for hot vending) which automatically prevent machines from vending food or beverages at unsatisfactory temperatures. They are in addition to, and do not interfere with, the regular cycling thermostat required in the machine.

PRESCRIBED SAFETY VALUES

F11-1000 (cold vending): prevents mechanism from dispensing when refrigerated compartment temperature rises to 50° F. or above.

F11-1200 (hot vending): prevents mechanism from dispensing when heated compartment temperature drops to 150° F. or below.

30-MINUTE RECOVERY PERIOD: Both controls have a 34 (±4)-minute time range, non-adjustable.

OPERATION OF THE CONTROL

The F11 Control is a semi-automatic type with manual reset mechanism responding to temperature change and is equipped with a mechanical, spring-wound timer as a component.

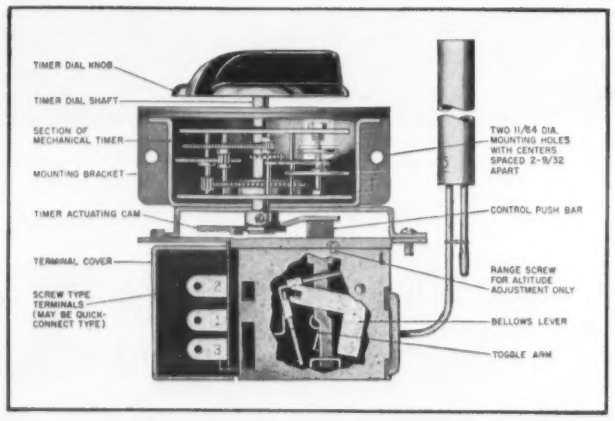
AUTOMATIC FEATURE of the control prevents coin mechanism from dispensing items when temperature of the compartment reaches the prescribed safety setting.

MANUAL FUNCTION is through the mechanical timer (not made by Ranco). Dial knob must be turned to an indicated stop to start the timer after loading or servicing. An actuating cam-push bar mechanism closes the contacts circuited to the machine so it will continue to dispense through the fixed 34-minute recovery period. If the system does not recover to normal operating temperature, the push bar unlatches to prevent dispensing. If the system recovers, the push bar remains latched and dispensing continues.

ALTITUDE ADJUSTMENT: correction provided for elevations to 8000 feet.

ELECTRICAL RATINGS: (Listed with UL and Canadian Standards Association) 115 volts a.c. non-inductive, 2000 watts, 7.4 amps. full load, 45 amps. locked rotor. 230 volts a.c. non-inductive, 1000 watts, 3.7 amps. full load, 23 amps. locked rotor.

Special modifications are available to meet your product needs through your Ranco distributor.



See your Ranco Distributor or write direct for complete, detailed Bulletin 1726 with wiring diagrams, technical data on F11 Series controls.

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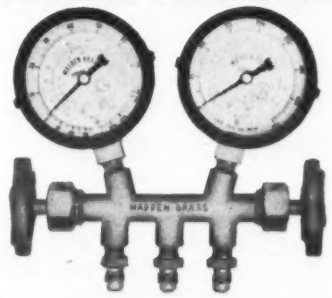

Pat. Pending

Designed for convenient charging, purging, testing etc., this new compact unit features an all brass forged body, easy-grip hand wheels, Teflon packing and seat for positive shut-off. Equipped with dual scale 2½-inch pressure and compound gauges. Hose connections ¼-inch male flare, gauge connections ⅛-inch female pipe thread.

HANDY HOSE HOLDER

Attaches to back of testing unit so free end of hoses can be conveniently coupled when not in use. Keeps them dry and free from dirt.

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Proposed Frozen Food Code--

loading temperatures be listed on every bill of lading to protect the shippers.

Gohlke said he wished other chains and large buyers of frozen foods would adopt the Jewel Tea Co., Inc. system of requiring refusal by shippers of improperly handled frozen foods.

Under the new regulations Jewel has set up, warehousemen are instructed to refuse to ship on vehicles they feel do not provide adequate protection and shippers are instructed to refuse to accept delivery of merchandise which is not at a temperature of +10° or lower. All of this is done in the name of the food chain.

W. V. Clower, American Refrigerator Transit Co., spoke for the railroads. He said his part of the industry does not anticipate any problems with the new code.

He said their standard procedure is to ship at -2° unless otherwise specified. He said they can maintain with current equipment temperatures as low as -10°.

But he warned that shippers must receive merchandise at zero in order to be able to maintain that temperature since their equipment is not able to refreeze.

C. Bartlett Eddy, Quincy Market & Cold Storage Warehouse Co., represented warehousemen on the panel.

He said he agrees fundamentally with the requirements set forth by Brinsfield. He said "good warehousemen" are already doing the things the code will require.

But he said "some few are more interested in selling a cheap service rather than a good service."

He said things would be much improved if people who use warehouse facilities for their products would check up from time to time to assure that they are getting the storage they are paying for.

He said the entire industry will be better off when the code is adopted. But he said he hopes the warehousemen will not have to act as policemen for the code.

Warehousing

1. The new code would cover frozen food warehouses not already covered by state laws.
2. The new code will probably require a thermometer in each room, storage on skids at least 3 in. off the floor and more than 6 in. from any outside wall.
3. It will probably require that damaged merchandise be disposed of immediately, whether the contents have been exposed to contamination or not.
4. Food must be at a tested zero temperature before moved from the warehouse.
5. Temperature checks in at least six different places of incoming loads may be another requirement.

9 Distributors Joined NCRSA During March

PHILADELPHIA—Nine commercial refrigerator distributors joined the National Commercial Refrigerator Sales Association during March, Marie Lawton, executive secretary, announced recently.

They are T & R Supply Co., Inc., Bradley, Ill.; Paul Hammond Fixture Co., El Paso, Texas; Trois Rivieres Refrigeration, Inc., Trois Rivieres, P.Q., Can.; Minnetonka Showcase Co., Minneapolis; Midwest Refrigeration Co., Ferndale, Mich.; Bill Scurlock Air Conditioning and Heating Service Co., Kansas City, Mo.; Bruce Robinson Electric (Edm) Ltd., Edmonton, Alta., Can.; Fetzer Refrigerator Co., Louisville; and Monger Fixture Co., Tulsa, Okla.

This makes 24 new members since the first of the year.

WHAT . . WHEN . . WHERE

— A Guide to Coming Events of Interest

Mechanical Contractors of America Convention
April 28-May 1, Shoreham hotel, Washington, D. C.

Oil-Heat Institute of America
April 29-May 4, Olympic hotel, Seattle.

Air-Conditioning & Refrigeration Institute
May 3-6, The Homestead, Hot Springs, Va.

National Heating Wholesalers Meeting
May 10-12, Ambassador hotel, Los Angeles

Industrial Heating Equipment Association Meeting
May 17-20, The Homestead, Hot Springs, Va.

Sheet Metal & Air Conditioning Contractors Annual Convention
May 28-30, Broadmoor hotel, Colorado Springs, Colo.

Institute of Appliance Manufacturers
June 1-3, Netherland-Hilton hotel, Cincinnati.

American Society of Heating, Refrigerating & Air Conditioning Engineers
June 22-24, Lake Placid Club, Lake Placid, N. Y.

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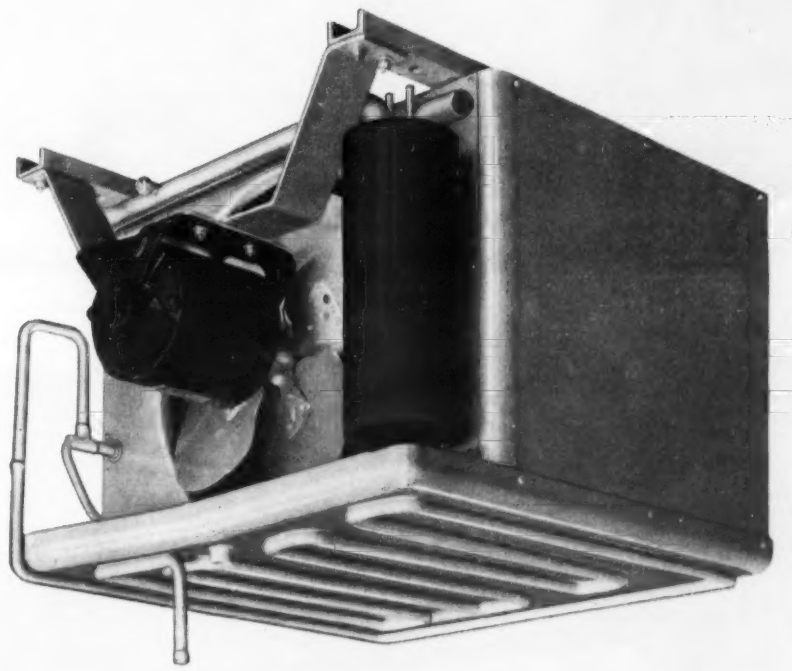

RECOLD'S VAPOMATIC IS NOW NUMBER ONE CHOICE FROM COAST TO COAST

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Dealer Who Finds Servicing Profitable Outlines '5 Simple Steps' for Success

DETROIT—While many contractors may consider service to be a nuisance, it can be a profitable operation, believes Harold Bowie of Gas Burner Service Co. here.

"We want service because we want to make money," he told the Michigan Heating & Sheet Metal Association at its 48th annual convention here.

"Our company shoots for a profit on service, and we expect to make a profit," Bowie declared. "If not, why do it?"

The service business was summarized by Bowie as consisting of "five simple steps" as follows:

"1. Get a lot of service calls.

"2. Do the work properly and quickly.

"3. Collect a reasonable amount for the work.

"4. Pay all your costs—labor, material, and overhead.

"5. Figure out how much money you made."

Dealers must take a realistic attitude towards this, however, he indicated.

"I've talked to so many people who feel that somehow they'll be making more money tomorrow, but actually there are men making money in all businesses today," Bowie commented.

"Our labor costs," he continued, "are broken down into two classifications: (1) direct labor charged to service calls, and (2) non-productive labor. We continually strive to reduce our non-productive labor costs.

"In charging for jobs you have to take into consideration such things as competition, but the inefficient company can't pass its costs along to the customer.

"There's also the problem of uncollected money," Bowie said. "Credit is a problem in a metropolitan area like Detroit, although it may be less so in a small town.

"We also get into a terrific amount of owner-tenant problems. We refuse to accept calls from tenants unless we have made a previous arrangement with the owner, and even then, we check with the property owner before making a service call.

Can't Allow Men To 'Romance' a Job

"It's important," he continued, "to do the job properly and quickly. After all, we're dealing with the customer's money. We can't allow our men to 'romance' a service job to build it up into something more costly.

"Honesty is the basis of all service relationships with the customer," Bowie is convinced.

"If you expect the customer to pay for training servicemen, you're being dishonest, so we have our own continuous training program for servicemen."

The company also encourages its servicemen to "probe into the causes of troubles" rather than simply fix everything "by the book," Bowie implied.

"Honesty in our servicemen is also protected by having a field supervisor who knows who is going where," he added.

"While this is policing in a sense, it is policing with a reason. Service problems keep changing, for one thing, and the supervisor in the field can discover weaknesses in a serviceman's knowledge which we can then correct," he explained.

As for getting service business, Bowie pointed out that there are two basic approaches: (1) offer low prices, or (2) build customer confidence.

Accurate Records Boost Customer Confidence

One way to build customer confidence is to keep accurate records of customers and service calls. Although these records are simplified, they're at the fingertips of the girl who answers customers' phone calls, he said. And when talking to the customer the girl tries to get on a friendly footing as soon as possible by such means as asking, for example, if the customer's phone number is still the same, etc.

The firm also uses direct mail to its list of customers.

Feeling that "a broken promise is the worst insult to a person," Bowie's firm tries to arrange it so that a serviceman arrives when the customer was promised he would.

"Sometimes service calls take longer than expected for one reason or another, so the serviceman can't get to the next call in time," Bowie recognizes. "Then it's our office's responsibility to phone the next customer and let him know that the original promise can't be kept. If it's a legitimate reason, the customer will usually understand."

Service Department Gets Credit for Sales Leads

While service is an important and profitable operation for this firm, the company is also interested in sales, but it feels that "if equipment is repairable, it should be repaired," Bowie commented.

"We know, though, that servicemen are the best bird-dogs for replacement sales possibilities, and when a sale does result from this source we credit the service department with an amount equal to the cost of advertising that would have been needed to create that sale," he explained.

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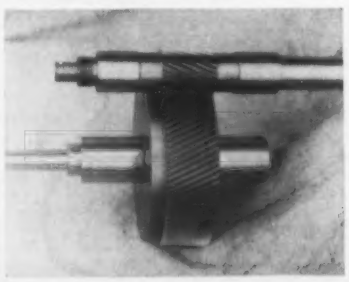

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NAPC Adds Business Seminars to 77th Annual Convention Program

WASHINGTON, D. C. — Six business seminars, including one on establishing and operating a bid depository, have been added to the program for the 77th annual convention of the National Association of Plumbing Contractors.

The convention will be held in Miami Beach, Fla., June 1-4.

President John M. Rhoades announced that the afternoon session on Tuesday, June 2, would be devoted to six one-and-one-half-hour seminars, three beginning at 1:30 p.m. and three at 3:30 p.m. Six different assembly rooms in Miami Beach's new air conditioned Exhibition Hall have been selected for the business seminars.

SEMINAR SUBJECTS

Subjects to be covered in the seminars were outlined as follows:

1. "Money" — covering the "how to" of obtaining capital for business expansion and featuring a banker, a Small Business Administration spokesman, and a Dun & Bradstreet representative.

2. "Pension and Security Planning" — including detailed analysis of one type of plan.

3. "Selling and Bidding In the Commercial Contracting Market" — discussion to include building repeat business, selling without bidding, plus actual experiences of member-contractors in the commercial field.

4. "Establishing and Operating a Bid Depository" — moderator, George P. Lamb, NAPC legal counsel.

5. "Spotting the Profits In Remodeling" — featuring actual case histories of successful remodeling-merchandising operations of member-contractors.

6. "New Problems—And Solutions—In Waste Disposal."

Alexander Orr of Miami, chairman of the convention committee, announced that morning and afternoon sessions will be held on June 1, 2, and 3, and that all convention business should be completed in a final morning session on June 4.

An extensive social program has been scheduled for the convention and overlapping National Plumbing-Heating-Cooling Exposition, which opens on Sunday afternoon, May 31. The convention will wind up with a banquet and dance at the Deauville hotel.

Dealer Makes Forms Available

Accurate, Simple Cost Records Needed By Dealer To Set Prices, Insure Profits

DETROIT — "If you don't know your costs, how can you set your selling price?"

This question was posed before the Michigan Heating & Sheet Metal Association at its 48th annual convention here by Walter Reckinger, who heads up Reckinger Heating & Cooling Co. in Dearborn, Mich.

How his firm uses simplified but detailed forms to keep track of costs was outlined by Reckinger, who also makes these forms available to other dealers at a slight charge.

"The margin of profit has decreased so much that you must know your costs," he emphasized. "Some firms have achieved their sales goals and held down their fixed costs but still lost money because their job cost records gave the incorrect impression."

A dealer's record-keeping, however, must be easy to operate, he advised.

"If you have to hire another man just to keep records, then you're going to have to make that much more to pay him," Reckinger cautioned.

This firm's basic approach to record-keeping, it was explained, is to "preprint" items used frequently on the various forms and to keep write-ins at a minimum.

Dealer's cost of frequently used items can also be printed on the form.

Not only does this approach simplify and speed up record-keeping, but it minimizes the chance of items being omitted when estimating and pricing jobs, Reckinger implied.

"It's better to list everything and then let the salesman cross out what doesn't apply," he believes.

In modernization work, he adds, costs can be estimated more simply if the various phases of the job are broken down into small components. This way nothing will be overlooked.

Important also, Reckinger says, is making provision for a ready comparison between estimated costs and actual costs after the job is completed. Only in this way can costs be fully analyzed.

"Many dealers can make a profit without these records, but it's becoming increasingly difficult to do so," he's convinced.

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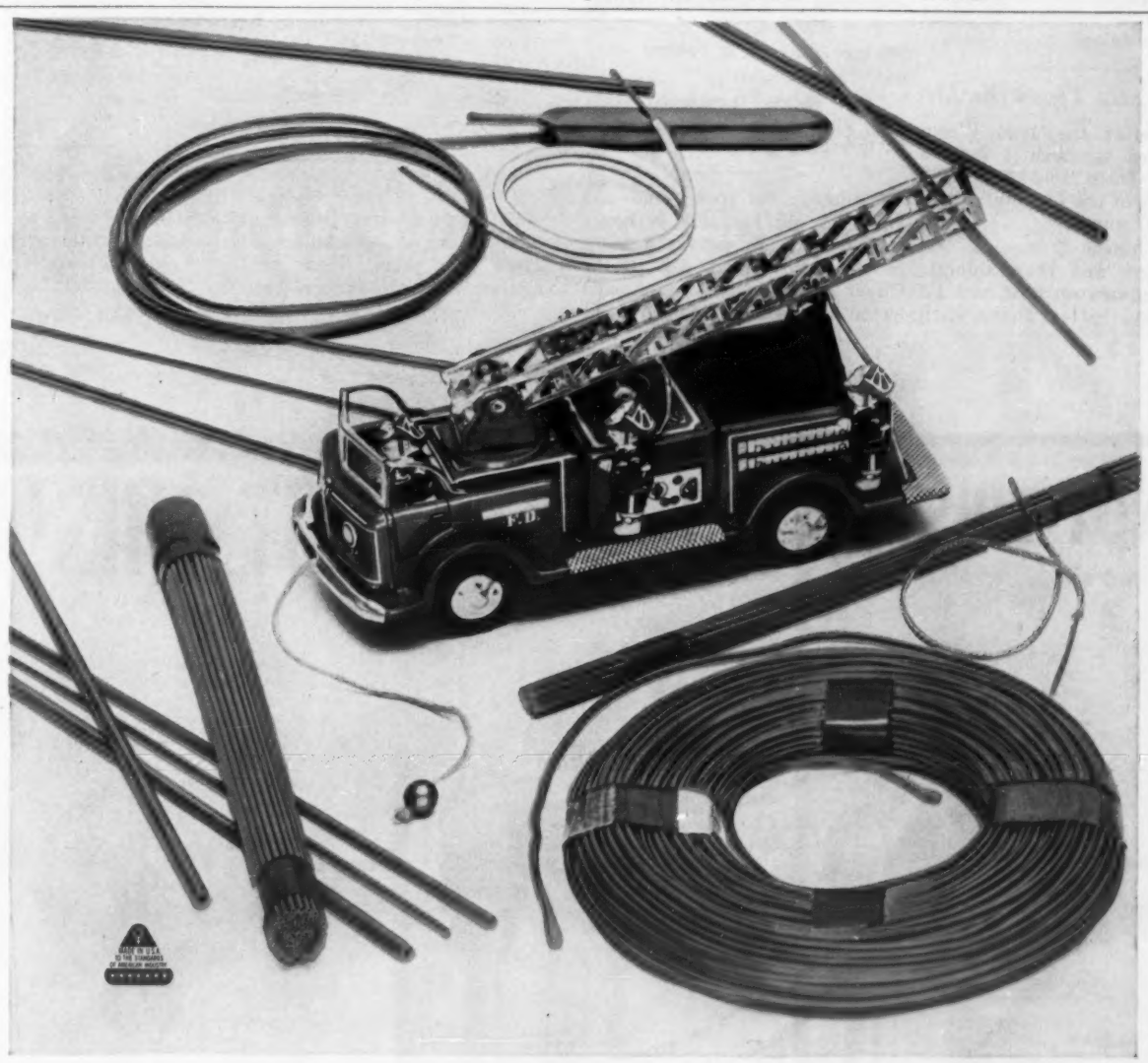

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Inside Dope

By GEORGE F. TAUBENECK

(Concluded from Page 1, Col. 1)

runs which will be scored (and in which innings) on this card.

Winning card would be identical with the line score of the game and the total number of runs scored. (Odds against a perfect card are 18,000 to one.)

Cash prizes (say, $100 tops) could be offered each night. And they could add up cumulatively. To a team which hasn't been winning, this jackpot of several thousand dollars for a fan would be a godsend.

Great thing about this idea is that patrons wouldn't have to shell out for the fun of gambling. Nor would they have to gamble if they didn't wish.

This idea not only might save minor league baseball. It could havoc television!

Many a Slip Twixt the Lip

Long after the 1934 World Series, Jay (or was it Jerome Hanna?) Dean told how he'd taken care of the Detroits in two "crooshul" games.

"Most times I mowed 'em down. Now and then, though, there'd be men on base and I'd get behind a batter. That's when ol' Frankie Frisch would calm me down by walkin' to the mound with soothin' words—and a ball drippin' with terbaccy juice."

More Baseball Oddities

One pitch and out!

Pitcher Art Schallock started for Baltimore against Kansas City (Aug. 3, 1955). His first pitch was hit safely by Vic Power. Almost simultaneously Schallock felt a throbbing pain in his pitching arm and retired.

Off his reliever the Kaycees scored three runs in that first inning, and weren't headed for the rest of the game. Losing pitcher: Schallock.

What? No Peanuts?

After his third conviction as a minor pickpocket at Chicago's Comiskey Park (home of the White Sox) Ed Murphy was sentenced by a whimsical judge.

The sentence: he must wear boxing gloves at every Sox game he attended.

"But judge," protested Murphy, "how can I eat peanuts with boxing gloves?"

Although he took time out twice to assuage (1) a heart attack, and (2) deliver a baby in the grandstand, Dr. Keith Oliver of Purcellville, Va., collected two hits and fielded flawlessly in a 1958 semi-pro baseball game.

To the world Portland (Pacific Coast League) announced it had sold Ken Jenkins to the Paris club in the Texas League.

That happened in July, 1938. The Paris, Texas team had disbanded in 1937.

Never Trust Women or Umpires

"We umpires are like women," quipped Larry Goetz.

"We make decisions quickly, win all arguments, and don't believe a man is safe when he is out."

Silliest lawsuit in baseball history was settled out of court (1957). Mrs. Dovie Green of Cincinnati sued Dodger outfielder Duke Snider for $75,000 after fielding a foul ball with her hat.

"Mr. Snider," she charged formally, "wobbled so as to cause the ball to take a course other than a home run."

Dean Over Stengel

Prior to meeting the Cardinals in St. Louis, Casey Stengel (then managing the Brooklyn Dodgers) called a clubhouse meeting. He went down the roster of Cardinal hitters, and advised as to how each one of them should be treated.

"You got us figgered good," spoke Dizzy Dean, who had snuck in unnoticed. "Now I'll tell you how I'm gonna pitch to youse guys."

He did, too, going right down the line.

Every Card batter knew what to expect; but Dean fogged a shutout.

Dizzier Than Brooklyn

Those daffy Dodgers didn't lose their dizziness when they moved from Brooklyn clean across the continent to Los Angeles. Consider some of the things that happened during their first year in the awkward Colosseum.

Item A. Just while standing in the coaching box Chuck Dressen pulled a leg muscle, and was *hors de combat* for two weeks.

Item B. The mound corps established a major league record of 69 wild pitches.

Item C. Fred Kipp, in a relief role, beat the Cubs with one pitch.

Item D. Manager Walt Alston berated Duke Snider for "wearing himself out" by playing 18 holes of golf on the afternoon preceding a night game. All the tired old Duke did was go four for four—homer, double, and two singles.

Hupp Reports Net Of $1,005,099 During 1958

CLEVELAND — Hupp Corp. reported net earnings of $1,005,099 in 1958, compared with a net loss after all charges and credits of $128,936 in 1957.

Net income per share amounted to 20 cents in 1958, as against a loss of 12 cents per share in 1957. Sales in 1958 rose 6% to $56,467,243.

"The encouraging 1958 results are largely attributable to constructive measures undertaken during the past several years," John O. Ekblom, chairman, and Don H. Gearheart, president, told stockholders.

Terming the corporation's balance sheet "strongest in the company's history," Ekblom and Gearheart noted "a sound cash position" of $3,381,640, bank indebtedness consisting entirely of $1,900,000 under a Regulation V type Revolving Credit, and long term debt of $2,637,464.

Current assets at the end of 1958 amounted to $23,108,401 and current liabilities were $8,896,489, a ratio of 2.6 to 1. At year-end 1957, this ratio was 2.1 to 1. Working capital at the end of 1958 was $14,211,912; in 1957, $12,414,509.

NOT THIS...
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BUT THIS!
When you replace a bulky, old-style valve—consider the advantages of Detroit's new 718 Expansion Valve. It gives you just as much capacity—is much more compact—and can be installed without repiping!
At the left are three typical installations. All of them are relative in size so that you can see for yourself how much space you gain.
Just turn it on its side! When you install the 718 like this . . .
you can immediately see that the inlet and outlet connections are in the right positions to replace the older valves. This is the smallest valve per ton of refrigeration. Its applications range from 1/2 to 3 tons for R-12 and 1/2 to 5 tons for R-22.
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DETROIT CONTROLS DIVISION

Polaris-Launching Nuclear Subs To Have Air Conditioning for 100-Man Crew

SYRACUSE, N. Y. — "The men at what may well be this nation's foremost line of defense by 1960, will man their stations in air conditioned comfort," Charles V. Fenn, vice president of Carrier Corp., said recently.

He referred to five atom-powered submarines now being built for the U. S. Navy, each of which can launch a number of Polaris missiles with a nuclear warhead while under water and concealed from detection. Nine of the "submerged launching pads" have been authorized by Congress.

"A pack of these subs lying submerged offshore could knock out key cities with fleet ballistic missiles (FBM) having a firing range up to 1,500 miles," Fenn stated.

The full potential of atomic submersibles can be realized only if the atmosphere for 10 officers and 90 crewmen inside the ship is habitable, it was pointed out. No air can be exhausted in tell-tale bubbles and it therefore must be continuously cleaned and purified.

Contracts have been awarded to Carrier for supplying refrigeration equipment for cooling and dehumidifying re-circulated air for all of the Polaris submarines now being built.

According to Fenn, each of the first five 380-ft. ballistic missile undersea ships will use five ductile iron reciprocating-type chilling systems providing a total of 300 tons' capacity. This is one-third more than that needed for air conditioning the *Nuclear Ship Savannah,* the world's first atom-driven, passenger-cargo surface ship, also using Carrier equipment.

The whale-like Polaris subs, almost as big as the Triton, largest of the Navy's submersibles, generate great quantities of heat. Largest source is the reactor. Extensive electronic machinery, lights and people, plus such morale items as a juke box, hi-fi system, television set, tape recorder, and electronic organ, also add to the need for temperature and humidity control.

Even when surfaced and the port exit leading to the "sail" (conning tower) is open, there is need for air conditioning.

The first three missile subs are scheduled for delivery by the end of 1960. The first two of these submarines are currently under construction at the Groton, Conn. shipyard of General Dynamics Corp.'s Electric Boat Div. Similar subs are being built at Mare Island, Calif.; Newport News, Va.; and Portsmouth, N. H.

Humidifier Stores a Million Sq. Ft. of Plastic To Solve Color Control Problem

BALTIMORE — Providing stricter quality control, new facilities of Topcraft, Inc. include a giant humidifier with storage capacity for a quarter of a million square feet of plastic surfacing material, the company announced.

Topcraft makes bathroom vanities, medicine cabinets, and kitchen tops. It claims to be one of the first manufacturers in the country to produce the post-formed tops now seen on "leading lines" of kitchen cabinets and bathroom vanities.

"These tops," it was explained, "are formed by bonding thermo-setting plastic surfaces to heavy, contoured wood bases. The result is a permanent, graceful rolled front edge and an easily-cleaned curve joining the table top and the backsplash."

Humidified storage is necessary, according to the company, to maintain proper working condition in the thermo-setting plastics which are bonded to contoured surfaces.

Topcraft said it "buys large factory runs in each color in order to assure perfect matching of colors.

"Color control has been one of the big problems in this business, because of slight variations in a given color from one mill run to another. Only by buying large quantities from single runs, and storing them in humidifiers, can the fabricator avoid color variations."

Missile Warning System To Have 150-Ton System

NEW YORK CITY — Engineers at Burns & Roe, Inc. recently completed designs for the BMEWS (Ballistic Missile Early Warning System) which will include a 150-ton air conditioning system.

The building will provide for experimental testing of model installations. The New York consulting engineering firm is responsible for the design and construction inspection of this special test facility to be built for the Radio Corp. of America at Moorestown, N. J.

When completed, BMEWS will detect an enemy ballistic missile shortly after it is launched, give continuous position and velocity readings, and predict its point of landing.

Two full floors and half a mezzanine in the 36-ft.-high building will house personnel and equipment. The entire building, which is 145 ft. square, is heavily shielded against radio frequencies to protect instruments and personnel from the antenna's powerful radiations.

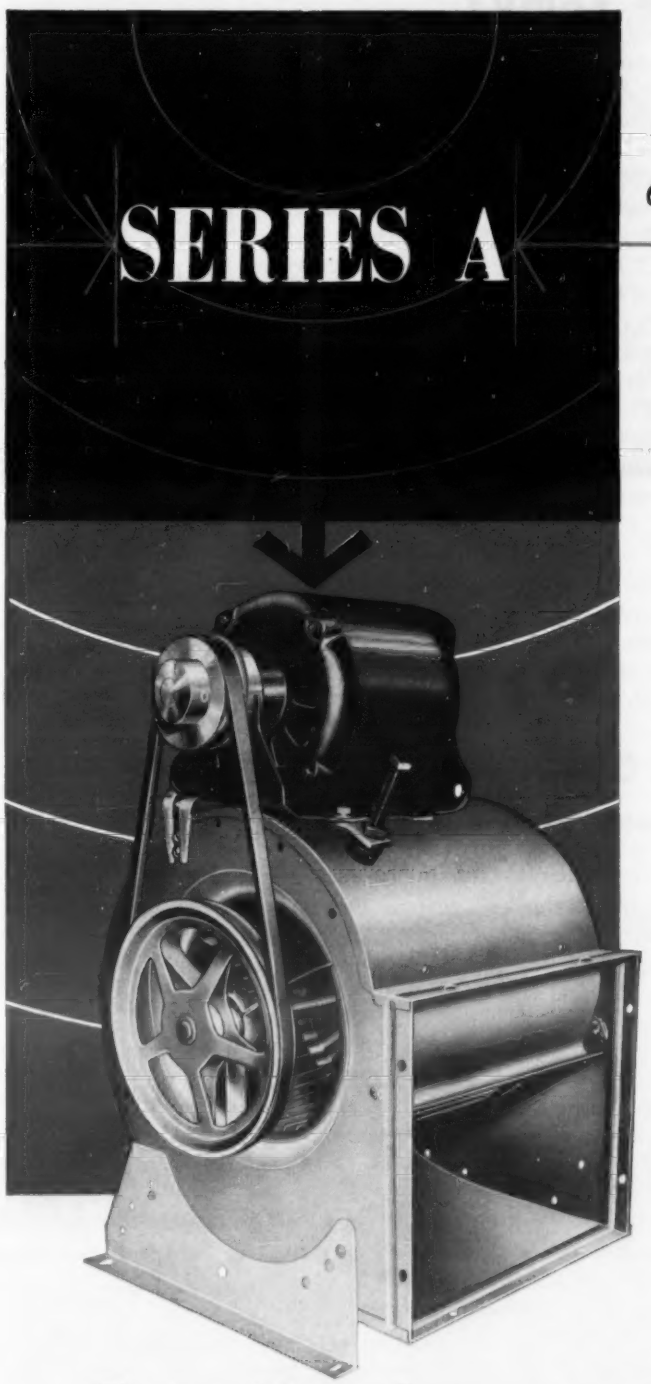
Atop the building, a nearly spherical 140-ft.-diameter radome will rest on a 105-ft.-diameter base.

Burns & Roe has designed the boiler room, as well as the 150-ton air conditioning equipment needed for transmitter and computer console cooling.

"In the Model Building, some 20,000 c.f.m. of air will be circulated to each of two transmitters," it was pointed out. "The system is designed to remove the equivalent of 175 kw in heat, additional heat being handled by a circulating water system.

"Water losses encountered in the cooling tower will be made up from a 350-ft. well to be dug on the premises. Because of its suspected high iron content, the 200 g.p.m. of make-up water will be chemically treated."

SERIES A



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Series A blower assemblies are recommended for warm air furnaces, central air conditioning systems, evaporative coolers, cooling towers, and remote condensers.

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They'll Do It Every Time

by Jimmy Hatlo

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Is Electrical Heating Cheaper Than We Think?

EXCEPTION to a recent NEWS editorial on home heating methods has been taken by Clement L. Stanford of the Electriliving Corp., 4913 North College Ave., Indianapolis, Indiana.

This editorial applauded the many advantages of electrical heat for homes, but observed that operating costs were comparatively high. Mr. Stanford rebuts:

"One of your short paragraphs states as follows: 'It costs about $250 per heating season to warm a small home with resistance equipment—in areas where snow falls regularly. The same probably could be heated with $160 worth of oil or $130 worth of gas.'

"We have several thousand happy customers who uniformly testify that their total heating costs are less than the total heating costs with oil, gas, or coal.

"In Indianapolis the oil heating people use a rule of thumb of one gallon of 16¢ oil per square foot per heating season. This would be $160 per year for heating with oil plus electricity to run the furnace plus all the other related cleanup costs. In this same territory, our total operating cost with electricity, for example, a 1.7¢ electric rate will always stay under $150 per heating season.

"Apparently when you speak about a small house heating for $250 with electricity, it is very ineffectively insulated with whatever type of insulation might happen to be available.

"If you are further interested in this juicy proposition, electric home heating done PROPERLY, we would be interested in being helpful any way we possibly can."

Figures quoted in the NEWS editorial came from Commonwealth Edison Co. in Chicago, and were corroborated by Detroit Edison Co.—both of which are desirous of promoting an electrical home heating load.

However, we're all for Mr. Stanford and *his* figures. If you're interested in further proof of the economy of electrical heating, we suggest you write him.

Justice Shouldn't Be Greedy —But It Can Be, Unfortunately

YOU'D PRESUME, wouldn't you, that the highest-paid judge in the country is the Chief Justice of the United States? Not so. Chief Justice Earl Warren takes home $35,500 a year before taxes. Not bad, of course.

However, friends at Dunham-Bush inform us that a Probate Judge in Hartford, Conn., last year pulled down $42,058—in fees, not salary.

Wagonloads of other judges still are paid by fees in the United States. Some of them may do even better for themselves than that overpaid jurist in Hartford. Double-dozens of judicial posts net their occupants $30,000 to $40,000 a year in fees from—note this well—judgments imposed *against* defendants.

Created originally in small, rural jurisdictions, to cover the part-time services of judges where local budgets couldn't promise salaries, that nefarious fee system persists long after its need has disappeared.

These fee-paid judgeships have become a racket. Often they subsidize predatory local political machines. Worse, way the fee system works out, it becomes a denial of justice too often in too many cases.

Essentially the fee system deprives a defendant in a criminal case of the normal operation of due process of law. Said defendant puts his liberty or property at the "mercy" of a judge who has a direct, personal, substantial, pecuniary interest in reaching a conclusion *against him.*

Even though some judges paid on this basis may rise above the temptation to collect a fee at the expense of a helpless but guiltless defendant—the system is out of line, out of date, and unjust.

Among many things American private citizens should become indignant about, this farce ranks high on the list.

Any day, so flagrant a denial of justice *for personal profit*—could bankrupt your company, disgrace a member of your family, or penalize YOU, YOURSELF—unexpectedly and at an awfully bad time.

What's the remedy? Form Citizens' Protective Committees in your own communities. Then petition to redress these denials of justice in your own states, and keep on working until ALL judges are salaried.

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'The Conscience of the Industry'

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TWO-FURNACE STORY SPURS INTEREST IN SUBJECT

American-Standard
Air Conditioning Div.
New York 18, N. Y.

Editor:

I have just written to Dale Mericle to compliment him on the fine job he did on the Two-Furnace Story which appeared recently. It is certainly an excellent coverage of the subject.

As you know, American-Standard Air Conditioning Div. has been pushing the use of two furnaces for zone control as a very important industry idea. We are sure that your fine story will go a long way toward helping it along.

We would like very much to have your permission to reprint this article in its entirety for distribution to our mailing list.

Since the NAHB Convention and the recent Heating and Air Conditioning Exposition in Philadelphia, we feel quite confident that the "Two-Furnace" story is really beginning to take hold with builders, contractors, architects, and engineers. Fine stories such as yours, of course, go a long way towards deepening this penetration.

We know, for a fact, that the happy coincidence of your story coming out in the issue of AIR CONDITIONING, HEATING & REFRIGERATION NEWS distributed at the Air Conditioning Exposition in Philadelphia went a long ways towards increasing the interest in the "Two-Furnace" story on the part of an exceptionally large number of people who dropped in to visit our "Two-Furnace" display.

Now that the bandwagon is really rolling, we can only hope that many more important factors in our industry will get behind the two-furnace idea with us.

It's bound to do all of us a lot of good, and like any really worthwhile practical comfort idea, the ultimate beneficiary will be the American homebuyer and this, of course, is as it should be.

WILLIAM P. SHEEHAN,
Manager,
Advertising &
Sales Promotion

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Service Crews Get Factory Instruction On How To Handle In-Warranty Equipment

By C. Dale Mericle

CHICAGO — Problems to be on the watch for when installing and servicing remote type air conditioners were outlined by representatives of Rheem Mfg. Co. for service crews of Resco Refrigeration Service, Inc., when the latter recently took on warranty servicing of Rheemaire equipment in the Chicago area.

While many of the servicing suggestions are limited to the Rheem unit, which employs a special spray-type combination air and water-cooled condenser, some of the information given the Resco men is applicable to many types of remote air conditioners. An operating demonstration unit was employed during the "class."

The meeting was conducted under the direction of sales representative William P. Lorentz with the aid of Ray and Herman Kendall and Frank Strong of Rheem, and assisted by Guido F. Restagno, president, and Martin F. Ladd, vice president of Resco.

Pre-charged tubing in lengths of 15, 30, 45, or 60 ft. is normally supplied with Rheem air conditioners, although the units can be installed with conventional lines, it was explained. An over-all limit of 70 to 75 ft., however, is advisable.

No increase in line sizes is necessary up to 60-ft. runs or so, and vertical runs can extend up to 20 ft. without providing for an oil trap, the Rheem representatives said.

Care Needed To Install Quick-Connectors

Quick-connectors are employed with Rheem pre-charged tubing, and these, it is claimed, provide good, leak-proof connections if proper care is taken.

Sometimes refrigerant has been lost through quick-connectors but only because their neoprene washers were not properly placed, it was emphasized. Important also is the need for keeping the connector and washer cool when soldering or welding close to the connector. Water should be run over the connector during such an operation, it was suggested.

Proper location of the condensing unit section is vital for good operation of the system, the Resco men were cautioned.

"We like to see 1 ft. to 18 in. clearance in front of the condensing unit and at least 3 ft. clearance at the outlet," explained a Rheem spokesman.

"Don't install the condensing unit section in a light well where the discharge air could circulate back through the inlet. If it is necessary to install the condensing unit in such a location that inlet and/or outlet air ducts are required, make sure that the curves are easy so as not to restrict airflow."

A very basic point about condensing unit location: allow room around the unit for removing top and end access panels for servicing.

Don't try to check condensing unit operation with the access panels removed, for this will cause the air to by-pass the condenser coil, it was indicated.

Check Operating Characteristics

Pointing out that the Rheemaire unit has a capillary tube and provides a suction service valve but not a high-side service valve, company representatives explained that operating characteristics can best be determined by checking: (1) suction line temperature, (2) wet bulb of air entering the condenser, and (3) airflow across the evaporator coil.

This data is then compared against tables and graphs that have been prepared by Rheem.

A sling psychrometer is used to determine the wet bulb of the air entering the condenser. A reading should be taken at least three times until two identical readings are obtained.

Suction line temperature is determined by attaching a good thermometer to the suction line with a silver clip where it enters the condensing unit cabinet.

Airflow and pressure drop through the evaporator coil are determined by using an inclined manometer instead of a U-tube manometer. The inclined manometer, it was explained, gives a much finer reading than the U-tube, down to .01 in.

"Proper airflow through the coil is one of the most important things in air conditioning, and yet it is often overlooked," the Rheem representatives said.

If the airflow is right but the suction gas temperature is extremely low, then the system is overcharged; if suction gas temperature is high, then refrigerant must be added.

Electric Service Problems Discussed

Electrical service problems were also discussed at the session, servicemen being advised, for example, to check voltage at the unit with the system in operation.

The Rheem warranty, they were cautioned, only applies if the system is receiving within ±10% of rated voltage, which on a 230-volt system means between 207 and 253 volts.

Exact replacements must be used on starting and running capacitors, it was also emphasized.

Among electrical failures to be watched for, the Resco crew was told, was fusing of the points of the potential starting relay. This would keep the starting capacitor in the circuit and cause it to blow up.

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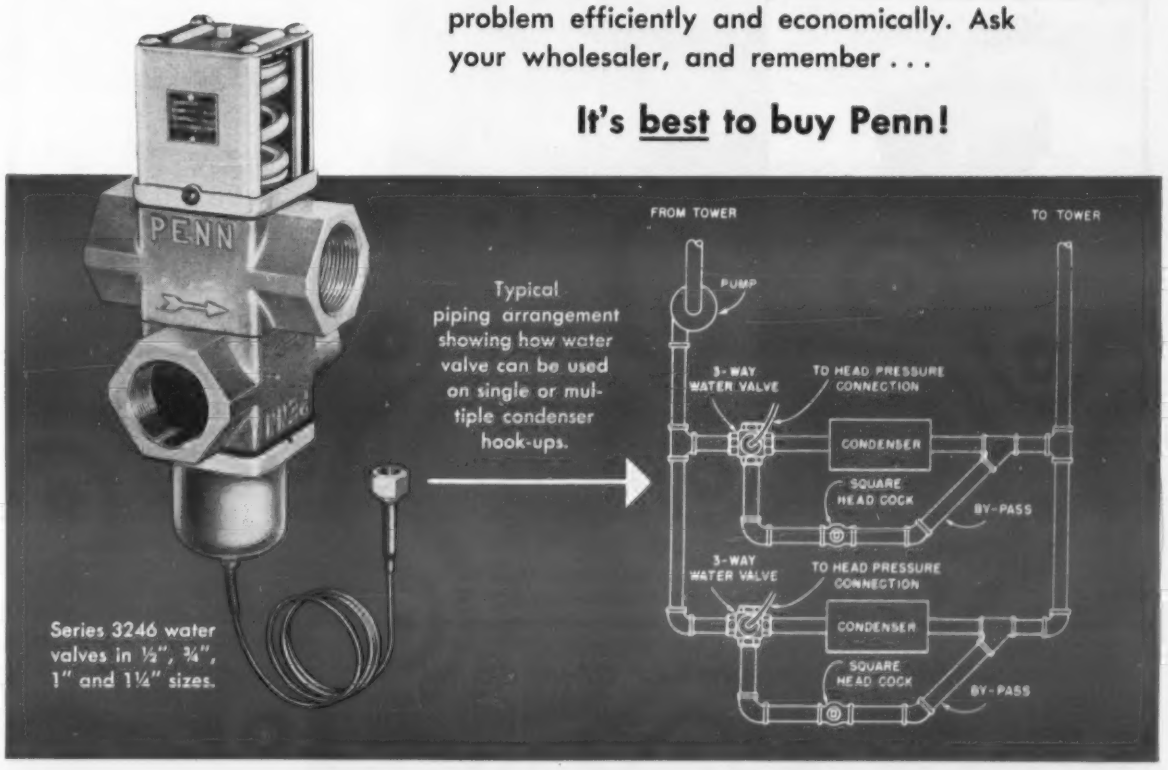
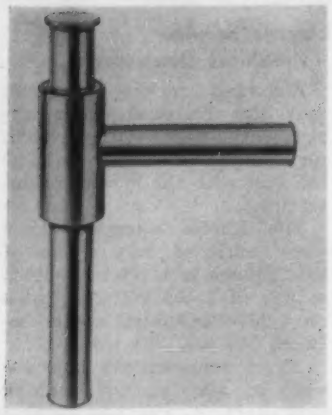


PENN CONTROLS, INC. Goshen, Indiana
EXPORT DIVISION: 27 E. 39th ST., NEW YORK, N.Y.
AUTOMATIC CONTROLS FOR HEATING, REFRIGERATION, AIR CONDITIONING, APPLIANCES, PUMPS, AIR COMPRESSORS, ENGINES

Valve Is for Non-Corrosive Refrigerants



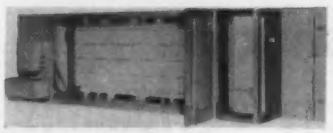
● Model 239 pressure regulating valve for non-corrosive refrigerants is a development of the Heating & Air Conditioning Controls Div., Controls Co. of America, Dept. AH&RN, 2450 N. 32nd St., Milwaukee.

The valve is offered in two sizes: (1) Model 239A in two adjustment ranges of 50 to 140 and 80 to 210 p.s.i.g. opening point; and (2) model 239B in an 80 to 190 lb. opening point adjustment range. Both valves open on inlet pressure increase above the valve set point. Each is standard with long connections for high temperature soldering.

"Capacity on the 239A at 4-lb. pressure drop across the valve is approximately 3 tons with Refrigerant-12; capacity on 239B at 4-lb. pressure drop is 6½ tons with Refrigerant-12," it was stated. "These two capacities are for 100° F. saturated gas entering the valve and 20° F. evaporating temperature."

Want More Details?

ADDITIONAL details on products that are described on these pages may be obtained by writing the manufacturer at the address given in each What's New story.



AAF Introduces Horizontal Filter

● New horizontal-design type H "Roll-O-Matic," automatic renewable-media air filter is being offered by American Air Filter Co., Inc., Dept. AH&RN, 215 Central Ave., Louisville 8, Ky.

Principle of operation is the same as that used in AAF's Roll-O-Matic air filter "proved in over 10,000 installations since 1954," the company said. The renewable media consists of a specially woven curtain of glass fibers which traverses the face of the filter and rolls up collected air contaminants, with used media, into a disposable roll at the side.

"The horizontal design is ideal for application on new or existing Multi-Zone air conditioning units, heating and ventilating units.

La Crosse Adds Upright Vendor

● Addition of a new "Bev'Trol 122" visual selective upright vendor to its line has been announced by the Vending Machine Div., La Crosse Cooler Co., Dept. AHRN, 2809 Losey Blvd., South, La Crosse, Wis.

The company said the machine "incorporates definite control of about one third of the total tray contents."

The model, which occupies about 4 sq. ft. of floor space, offers a total of nine flavors. It accommodates 122 bottles in the trays, has pre-cooling facilities for 61 more.

"By using an electric National Coin Rejector in combination with a heavy-duty solenoid which actuates the release mechanism, only two easy steps are required to obtain the beverage.

Electric Dehumidifier Is for Home, Office

● An electric dehumidifier for home or office use that is available with or without humidistat is introduced by Heat Controller, Inc., Dept. AH&RN, 1900 Wellworth St., Jackson, Mich.

Equipped with ⅛-hp. Tecumseh compressor, they will remove up to 3 gals. of moisture from the air per day. Water container is a removable styrene pail of 8½-qt. capacity. The unit also has a permanent ½-in. o.d. drain tube for connecting a hose.

The unit measures 17 by 17 by 12 in. and is mounted on socket-type casters. It weighs 53 lbs. without humidistat and 55 lbs. with it. Finish is woodtone brown and sand beige.

Suggested list price is $119.95, or $134.95 with humidistat. This includes five-year warranty on refrigeration system.

Flexible Duct Connector Line Introduced

● A newly-designed flexible duct connector line was announced by Duro-Dyne Corp., Dept. AHRN, Farmingdale, N. Y.

"Griploc," a new method of fastening fabric to metal, consists of a continuous series of fingers which grip the fabric by means of a double lock, it was pointed out. Advantages are said to include: "Positive metal to fabric lock, dispenses absolutely flat, easier than ever to cut with ordinary snips, and forms on brake without tearing fabric."

The new connector is now available in the "Junior" and "Econ-O-Fab" as well as "Metal Fab."

IMPROVED HYDŌ HOLLOW CONE SPRAY NOZZLES CAN'T CORRODE

Spraying Starts Below ½ PSI
Injection Molded of "Tenite" (Butyrate)

NOZZLE NO.	IPS	GPM AT 7 PSI	SPRAY ANGLE
H .5	⅜"	.5	60°
H 1.0	⅜"	1.15	75°
H 1.8	⅛"	1.8	90°
H 2.5	⅛"	2.5	100°
H 3	¼"	3.3	76°
H 5	¼"	5.0	85°
H 7	⅜"	7.0	100°

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NEWS readers are invited to write to the editor giving their opinions on any subject of interest to the industry.

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30 Possible Combinations

Self-Contained Unit Multi-Zone Type SCMZ
From 11 Basic Models
50 Possible Combinations

Self-Contained Unit Shell and Tube Type ST
From 13 Basic Models
25 Possible Combinations

Self-Contained Unit Multi-Zone Type STMZ
From 13 Basic Models
25 Possible Combinations

Horizontal Air Conditioner Type GHC
From 14 Basic Models
56 Possible Combinations

Vertical Air Conditioner Type GVC
From 14 Basic Models
56 Possible Combinations

Multi-Zone Air Conditioner Type GMZ
From 14 Basic Models
84 Possible Combinations

Evaporative Condensers Type EC
From 14 Basic Models
28 Possible Combinations

*ChillPak Water Chiller Type CPS
From 10 Basic Models
68 Possible Combinations

*Cabinet models available with built-in or remote evaporative condenser.

ORIGINATORS AND DEVELOPERS OF COMPLETELY PACKAGED AIR CONDITIONERS

NATIONAL REPRESENTATION IN PRINCIPAL CITIES. SEE YOUR LOCAL YELLOW PAGE PHONE DIRECTORY.

GOVERNAIR

WRITE FOR FURTHER INFORMATION ON ANY SPECIFIC UNIT, OR SEE OUR LISTING IN ASHACE "GUIDE."

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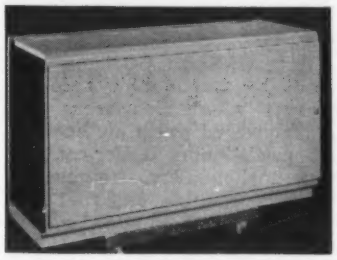


Lennox Adds to System For School Classrooms

● Addition of heat pump and electric heat to its "Comfort Curtain" system of heating, ventilating, and air conditioning of school classrooms has been announced by Lennox Industries, Inc., Dept. AH&RN, 1701 East Euclid Ave., Des Moines, Iowa.

Known as the BCPE1-3, this unit is "especially suitable for western and southern climates where it will provide adequate heating without the use of a central system," the company stated.

"A regular 54,000 B.t.u.h. heat pump coil is supplemented by four electric strip heaters of 4 kw. each. Maximum output of the electric strip unit at full capacity is approximately 54,800 B.t.u.h."

Dehumidifier Has Daily Capacity of 4 Gals.

● Introduction of a new "Super Deluxe" dehumidifier (model KSD-32) has been announced by Kelvinator Water Coolers, Dept. AH&RN, Columbus 13, Ohio.

Complete with built-in humidistat, the dehumidifier removes up to 4 gals. of water waste every day from basements or other closed areas totaling up to 14,000 cu. ft., according to the announcement.

The white and gray vinyl-clad cabinet is accented by a silver anodized aluminum grille. A 2-gal. capacity unbreakable polyethelene moisture container is mounted in back of the dehumidifier, which weighs 55 lbs. and stands 23½ in. high, 12 in. wide, and 14½ in. deep (with receptor).

SEND FOR REPRINTS

"ELECTRICAL CHARACTERISTICS OF PACKAGED AIR CONDITIONING UNITS."

Only 25¢ each.

For your copy, clip this ad and mail with name and address to: Air Conditioning, Heating & Refrigeration News. 450 W. Fort, Detroit 26, Mich.

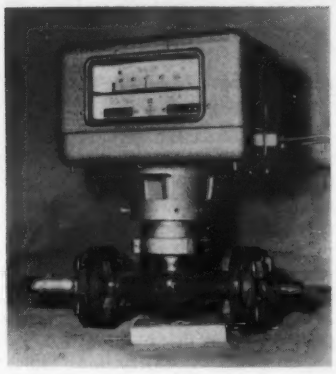
U.L. & A.S.M.E. WATER-COOLED CONDENSERS ¼ TON to 15 TONS and LIQUID RECEIVERS for EVERY REQUIREMENT

Write for our NEW Catalog

STANDARD REFRIGERATION CO.

6034 W. North Ave. Chicago 39, Illinois

Meter Measures Heating, Cooling Consumption



● A new Pollux heat pump B.t.u. meter that is said to accurately measure both heating and cooling consumption in commercial installations has been announced by Air Conditioning Equipment Corp., Dept. AH&RN, 219 E. 44th, New York City, the U.S. distributor.

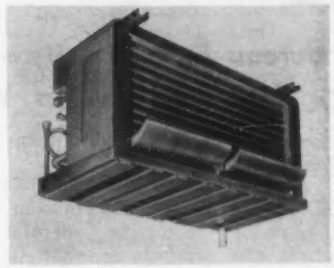
"The new meter makes it possible to charge tenants for both heating and cooling from a central heat pump installation through a single meter and in exact proportion to what each tenant uses," the announcement said.

"A mechanical device, the Pollux meter consists of a liquid meter, an integrator, and two temperature sensing bulbs," it was explained. "One bulb is placed in the supply line and the other in the return line. The difference in water temperature between the supply and return lines is multiplied mechanically by the integrator with the flow of water which has been converted to net weight.

"The result in B.t.u. is shown cumulatively on a digital counter on the face of the meter. One dial shows heating, a second cooling, depending on what cycle is in use. Also shown is the instantaneous temperature."

The heat pump meter automatically changes from heating to cooling.

Unit Cooler Has Calrod Heating Elements



● Its new fully automatic "Hot Rod" system unit cooler electrically defrosts at predetermined intervals, it was announced by McQuay, Inc., Dept. AH&RN, 1600 Broadway St., N. E., Minneapolis 13.

Hot Rod gets its name from the brass sheathed calrod heating elements which run through the center section and rapidly defrost the coil, it was explained.

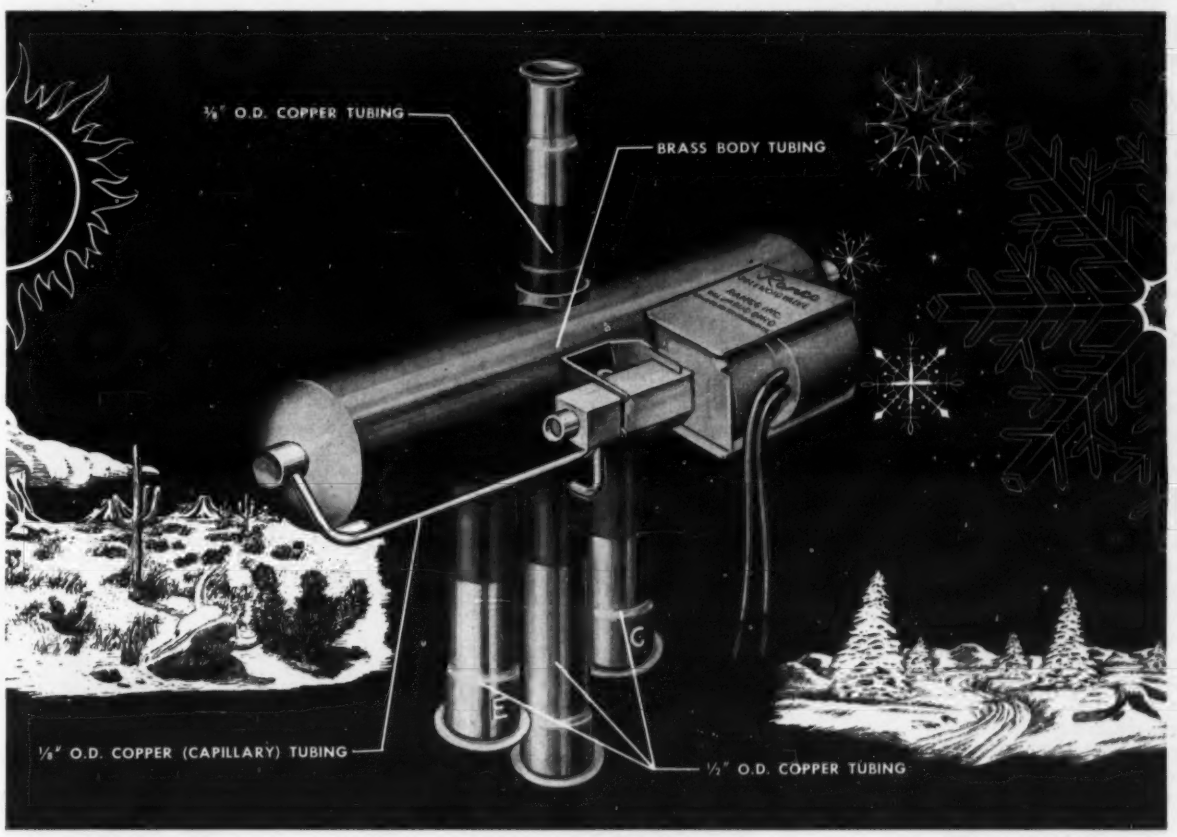
There are eight sizes of Hot Rod systems, ranging in capacity from 3,000 to 32,000 B.t.u.h. at 10° T.D. All models feature casings of hammered aluminum, and are equipped with built-in heat exchangers.

"The aluminum drain pan is heated electrically for positive deicing," the company said. "All electrical heating elements, both fin coil and drain pan, are readily accessible and easily removable without disturbing the coil or drain pan."

Adds Small Water Cooler

● A smaller size water cooler with 3 gals. capacity has been added to its Oasis "Constellation" series by Ebco Mfg. Co., Dept. AH&RN, 265 N. Hamilton Rd., Columbus 13, Ohio.

Called the "Bubbelet," it takes only 1 sq. ft. of floor space and stands 40½ in. high. Top is hand polished stainless steel of splash-proof design. "Dial-A-Drink" bubbler provides even flow of water.



"Everybody talks about the weather..."

WOLVERINE TUBE HELPS RANCO ACHIEVE YEAR 'ROUND AIR CONDITIONING COMFORT!

Blow hot . . . blow cold . . . whatever the weather, the reversing valves manufactured by Ranco Incorporated, Columbus, Ohio, act as the nerve center for providing the right type of climate to meet either condition.

Ranco reversing valves control heat pump operation in air conditioning units—both window and central types. In cold weather, these units extract heat from outside air and circulate it indoors—in summer the cycle is reversed with heat gathered from indoors released outside.

Wolverine Tube manufactures much of the copper and brass tubing used by Ranco in manufacturing its reversing valves.

Among this tubing is Wolverine Capilator®—the tiny capillary tubing for precision metering of liquids and gases. The valve body proper is formed from Wolverine brass tubing and the ports leading to the compressor and inside and outside exchangers are manufactured from Wolverine copper tube.

Wolverine Tube is proud that its tubular products are so widely used by Ranco and other leading manufacturers throughout American industry . . . believes that this is the result of its Tubemanship program from which comes tubing conceived in research and sound engineering and backed by years of experience.

If your company uses copper, copper alloy or aluminum tubing get the Wolverine story before you order again. Just write for your free copy of the "Measure of Tubemanship." Do it today.

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PLANTS IN DETROIT, MICHIGAN AND DECATUR, ALABAMA. SALES OFFICES IN PRINCIPAL CITIES

Silver Shield

How To Establish Bureau In Your City--and a Progress Report On the NWAHACA Sponsored Project Where It Is Being Tried

CLEVELAND—It was just a year ago that the first steps were taken to organize an Indoor Comfort Bureau and put the "Silver Shield Program" on trial.

And, as a result, the idea started by 12 dealer-contractors "has become a solid moving reality in cities and towns throughout the nation," reports the National Warm Air Heating & Air Conditioning Association.

This industry movement, launched by the association and aimed at developing a cooperative program across the nation for the upgrading of heating and cooling installations, is "winning wider and wider acceptance every day."

Daily, according to George Boeddener, NWAHACA managing director, mail and telephone inquiries are being received from throughout the United States requesting detailed information or a formal presentation on the Silver Shield Program and the organization of an Indoor Comfort Bureau.

"During a two-week period from Feb. 25 to March 11, over 1,000 individuals, including dealer-contractors and representatives of gas utilities, oil interests, and equipment manufacturers, attended meetings in cities and towns throughout the midwest, Texas, and California to hear the Silver Shield story," it was pointed out.

"Also attending these meetings were wholesalers, distributors, and others interested in finding out how a local Indoor Comfort Bureau is formed; and how, by working together, local heating-air conditioning dealer-contractors can increase their profit through guaranteed installations."

States where Silver Shield activity is now developing through inquiry committees, presentation meetings, or the actual formation of an Indoor Comfort Bureau are: Michigan, New York, Wisconsin, Indiana, Iowa, Tennessee, California, Washington, Oregon, Texas, Florida, Oklahoma, Ohio, Illinois, and Pennsylvania.

Usual Procedure for Setting Up Program

Formation of a Silver Shield Program, on the local level, according to Managing Director Boeddener, usually occurs in the following manner:

A LOCAL GROUP or individual reads about the program in one of the trade journals, or hears about it by word of mouth at a meeting or from one of the manufacturer members of the association.

A LETTER OF INQUIRY, asking for additional information on the Silver Shield Program is sent to national headquarters of the National Warm Air Heating & Air Conditioning Association, 640 Engineers building, Cleveland, Ohio. Letters come from individual dealers, officers of local trade associations, or committees of local associations which have been authorized to study the Silver Shield Program and report back to their fellow members.

A KIT OF SILVER SHIELD MATERIALS and information, containing complete details about the program is sent to these inquirers by the association, together with suggestions and recommendations on what steps they can take to launch Silver Shield activity.

A MEETING, formal or informal, is usually held by interested local dealers at this juncture to discuss what the local group wants to do about the Silver Shield Program. Sometimes a regular meeting of the local association is devoted to this discussion. The matter is openly and freely discussed and weighed. In some instances, two or more local groups will work together during this period.

A "STEERING" COMMITTEE is then sometimes formed or appointed by the local groups to make further contact with NWAHACA by telephone or letter to learn when a staff representative of the association can visit their city and assist them with preorganization planning and details.

THIS CITY OR LOCALITY is then listed on the association's national Silver Shield organizational chart by Field Representative Richard F. von Munkwitz, who follows up immediately by telephone and letter with the local group and arranges a preliminary trip to that locality as quickly as his schedule permits.

Association Makes Market Study

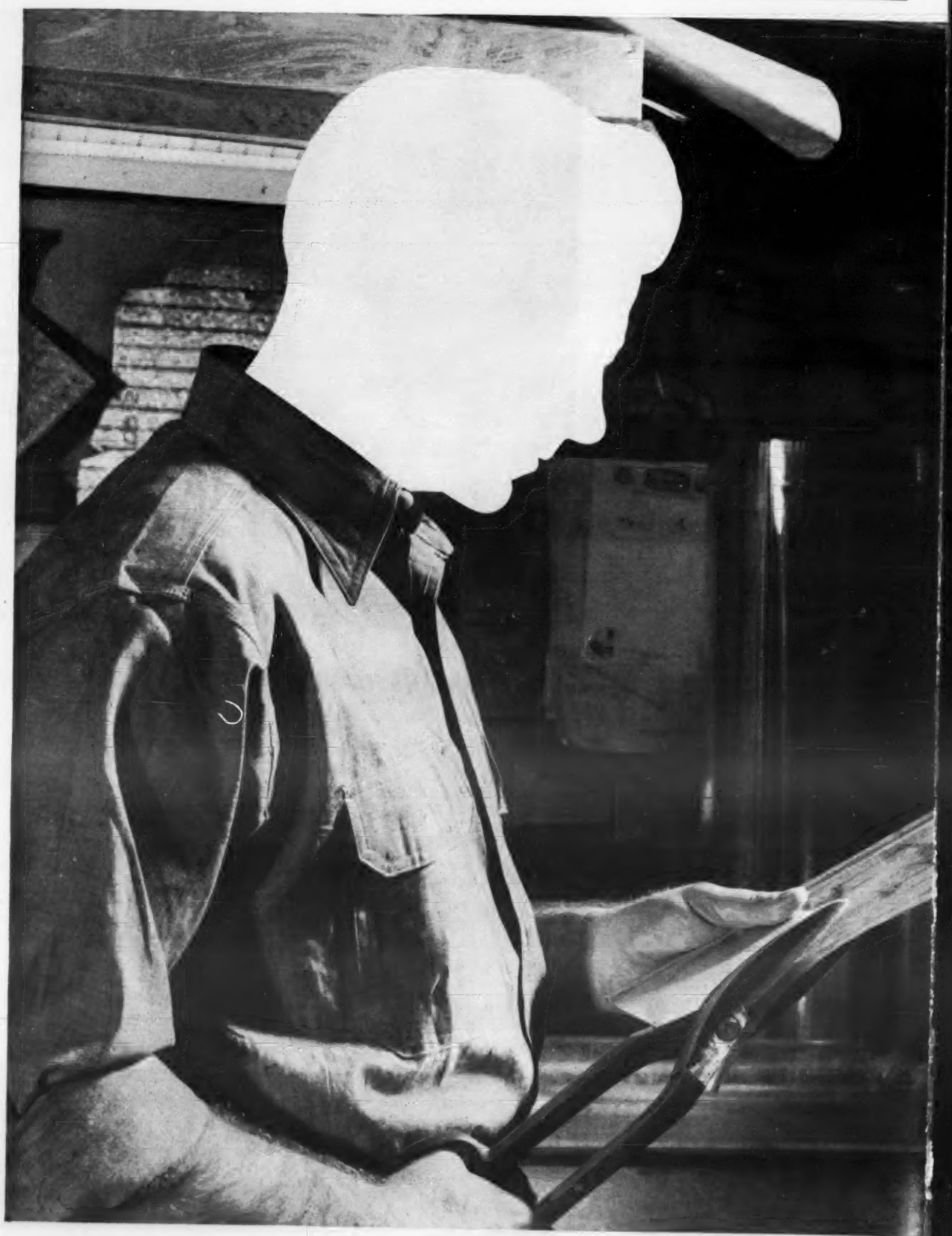
A COMPREHENSIVE MARKET STUDY of the locality is begun in the meantime by James D. Nolan, assistant director of public relations, preparatory to a determination conference by the public relations staff of the association, in order that an over-all organizing plan can be formulated for that specific locality.

FINAL REVIEW of the organizing plan, market analysis and all other pertinent information is made by Randall Nelson, director of public relations of the association, who calls upon his decade of heating-air conditioning promotion experience and knowledge to guide him in hammering the proposal into a concrete program.

AN EARLY CONTACT is made by von Munkwitz to the locality where he confers with all interested warm air heating-air conditioning dealer-contractors, wholesalers, representatives of utilities, and fuel suppliers and gathers additional information. During his initial contact a definite date and place is scheduled for a Silver Shield presentation to the entire local ducted air system industry.

SEVERAL FORCES then go to work. Plans are made for a Silver Shield rally meeting. The local committee selects a date, an adequate place.

LETTERS inviting every dealer-contractor and interested industry person in the locality are made by the local committee and by the National Warm Air Heating & Air Conditioning Association. Sometimes the local



gas and oil interests send out invitational letters, too.

THE SILVER SHIELD PRESENTATION is a detailed explanation of what the Silver Shield Program means, how the local Indoor Comfort Bureau is organized, and an enumeration of the many benefits and advantages of the program to the local industry. Costs of participation and the results are thoroughly explained.

DEALERS INTERESTED in the Silver Shield Program then organize a local Indoor Comfort Bureau for the specific purpose of promoting Silver Shield Systems and operating the Silver Shield Program in their city. They elect officers and establish committees on Silver Shield standards supervision, Silver Shield System promotion, Silver Shield publicity, and Indoor Comfort Bureau membership. An application for a Silver Shield Program operating license is forwarded to the national association, in which the local Indoor Comfort Bureau agrees to operate its Silver Shield Program in conformance with the prescribed policies of Silver Shield Program.

A TRAINING PROGRAM, ranging from eight to ten weeks, on a one-night-a-week basis, is then generally instituted by the local Indoor Comfort Bureau, even while it is in the process of organizing. Purpose of this program is to acquaint and train local dealer-contractors as well as local Indoor Comfort Bureau members in how to follow the Silver Shield design, installation, and adjustment standards. A training program curriculum and guide is provided by NWAHACA, and capable local application engineers are recruited as instructors.

DURING THIS PERIOD the national association zeros-in its Silver Shield publicity guns on the locality in keeping with master plan which has been developed by the association's public relations staff for that specific city.

Contacts and orientation are established with local newspapers and radio and TV stations, appraising them of the local public service program which the local heating-air conditioning industry is preparing to launch.

Agencies and individuals of local civic, business, and political influence are contacted and acquainted with the Silver Shield Program. All of this activity is built into a developing crescendo to climax at end of the training program.

SILVER SHIELD WEEK is then held to signal the launching of the Silver Shield Program in the city. During this week, numerous news-making activities are instigated to make local homeowners and consumers aware that something excellent has finally come to their town.

A round-up Silver Shield activity throughout the nation finds activities occurring in a constantly expanding number of cities and towns, says Randall Nelson of the association. Specific activities cited:

KALAMAZOO, MICH—"First Silver Shield Program in the nation, now in its eighth month. Wide community acceptance. Numerous installations in new homes and many modernization jobs. Also, evidence that Silver Shield promotion has had decided influence in upgrading quality of systems not labeled with Silver Shield."

LANSING, MICH.—"Now in formation. Conducting training school. Kick-off week to be held soon.

ROCHESTER, N. Y.—"Formation committee now in operation, and plans for a training school are being made. Formation of an Indoor Comfort Bureau in progress."

MILWAUKEE—"Indoor Comfort Bureau being organized. Intense interest by local dealer-contractors. Field survey by association completed and organizing committee being formed."

UTICA, N. Y.—"Preliminary contact made. Initial contact with interested person made by association field representative."

GRAND RAPIDS, MICH.—"Organizing committee has contacted national headquarters. Preliminary market survey in progress. Charted for action and formal presentation to be made on April 21."

FORT WAYNE, IND.—"Letter of inquiry received by the association. Initial contact to be made during month of April. Compilation of marketing data in progress."

SYRACUSE, N. Y.—"Presentation of Silver Shield Program made during latter part of March. Request for field representative was being scheduled by association."

NASHVILLE, TENN.—"Full cooperation and interest indicated at local level. Complete Silver Shield Presentation meeting was scheduled for April 14."

PHILADELPHIA — "Silver Shield presentation to be made on April 24. Vast local interest shown from preliminary contact. Market study now being planned."

CALIFORNIA—"In cooperation with the Warm Air Heating Institute of Northern California, Silver Shield presentations have been made in several cities by Roland Taylor, trustee of the national association, and Dar Knowles, executive manager of WAHINC.

"Cities that have received full presentations are Fresno, Stockton, San Mateo, Sacramento, Oakland, San Jose, and Modesto.

"During the week of April 16, Randall Nelson, director of public relations of the national association, was in California to confer and assist in the formation of Indoor Comfort Bureaus."

KENTUCKY—"News releases prepared with local state angle to reach all dealer-contractors. A number heard a description of Silver Shield Program at the University of Kentucky at the Kentucky LP Gas Association Management Conference held on March 25."

TEXAS—"Interest in several communities including Dallas and Fort Worth. Dallas air conditioning contractors heard a full presentation of the Silver Shield Program in March."

FLORIDA—"Local dealers in principal cities have indicated interest. Follow-up contacts now being made. A training school is now in progress in Miami."

IOWA—"Letters of interest received at national headquarters. Follow-up is under way."

OKLAHOMA — "Interest by fuel people and dealer-contractors."

OHIO — "Letters of inquiry and preliminary contacts made in two major cities."

ILLINOIS — "Letters of contact and plans for field visit now in progress."

The man who had to become an executive while using a pair of tin snips

Finger callouses once marked the successful man in your field. Not so any more. The heating and air conditioning business "grew up" almost overnight.

Suddenly you had to be many other things besides a master mechanic. You had to be a merchandiser, purchasing agent, cost accountant, public relations expert, sales developer—and assume a role of leadership in the community.

Lennox recognizes your new stature—and your new problems. As a result, Lennox and its dealers work closely—like partners—in finding answers and practical solutions. Because of this close cooperation—both Lennox and its dealers have grown tremendously.

If you aren't getting this kind of help from your supplier, it's time you phone or write for the full Lennox story. No obligation.

LENNOX *World leader in indoor comfort for homes, business, schools*

Lennox Industries Inc. founded 1895 • Marshalltown, Iowa • Columbus, Ohio Syracuse, N.Y. • Fort Worth, Texas • Salt Lake City, Utah • Decatur, Ga. • Los Angeles, Calif. Des Moines, Iowa • Lennox Industries (Canada) Ltd. • Toronto, Montreal, Calgary and Vancouver

'Install It Yourself' Auto Unit Has 2 Small Round Cooling Units

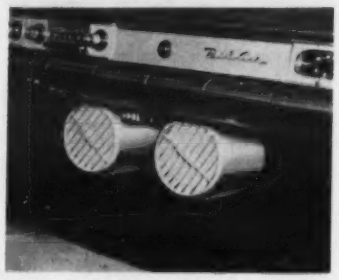
CHICAGO — An "install it yourself" automobile air conditioner that uses two small round cooling units under the dash rather than a single evaporator unit has been introduced by Kool Engineering Corp. here.

The cooling cylinders, 8 in. long by 7 in. in diameter, give individual cooling to both driver and passenger. They can also be mounted in the trunk and set into the rear deck. Small, foreign cars can use only one cooling unit.

William Slack, sales manager, says the new unit will fit most automobile and truck models dating back to 1951. Installation time is three to four hours.

Compressor and other parts mount under the hood. They weigh 85 lbs. Rubber hose connections are used throughout. The system can be factory charged with refrigerant.

Retail price is $185.



KOOL ENGINEERING Corp.'s "install it yourself" auto air conditioner features two small round cooling units to give both passenger and driver individual cooling. Compressor and other parts mount under hood.

Automotive Fleet Air Conditioning

Service, Maintenance, Depreciation, Transfer Costs and Company Attitudes Discussed by Fleet Manager

CLEVELAND — How does thes automotive fleet manager view air conditioning — luxury or necessity?

It has presented many problems, according to Sam Lee of Lee Fleet Management, Inc. here.

First problem is to decide who among the car users needs air conditioning and who doesn't. It's hard to make geographical divisions and 90° F. is just as hot in Minnesota as in Texas.

While maintenance problems have proven negligible with average maintenance costs somewhere around $8.50 a year, according to Lee, depreciation costs have proved to be prohibitive for a sales fleet that replaces vehicles every year or two.

"Those fleet managers who experimented with factory installed air conditioning found that used car values were increased only around $100 as against an original cost of close to $400 regardless of whether a car was in operation one year, two years, or even four years," Lee said.

"The dash type of air conditioner proved even worse because used car dealers immediately labeled this type of air conditioner as 'off brand.' Fleet managers found that they were lucky if an air conditioned car brought a $50 to $75 higher price in the used car market."

Lee continued:

"The next step was to experiment with transferring the 'box type' air conditioners from car to car so as to lengthen out the period of usage. The cost of each transfer is about $50 plus any new parts that might be needed, rarely exceeding $25 in cost.

"This practice soon ran into trouble, though, because of changing car design. Most 1957 model cars, for example, came out with a different type dash and, therefore, older model air conditioners could not be transferred into the new cars.

"In any event, air conditioning represents considerable additional expense. How this extra cost is handled varies considerably from company to company. Many companies charge the salesman anywhere from $10 to $15 per month over and above any other charge the company may make for personal usage.

"Another approach that has been used successfully is to allow a man an air conditioning unit in his car only if he guarantees to buy the car himself or sell it to some relative or friend when it is to be replaced. He must recover the full book value of the car, with the air conditioner having been depreciated at the same rate as the car itself.

"The net result of all this seems to be that most companies either consider air conditioning as a complete fringe benefit to the employe and write it off on that basis, or they take a 'hands off' attitude.

"In this event it becomes the salesman's problem to work out. If he wants an air conditioning unit he must buy it himself, transfer it from unit to unit if he wishes to do so, and pay all the costs involved."

Rambler Offers Cooling As Dealer-Installed Option on Recent Models

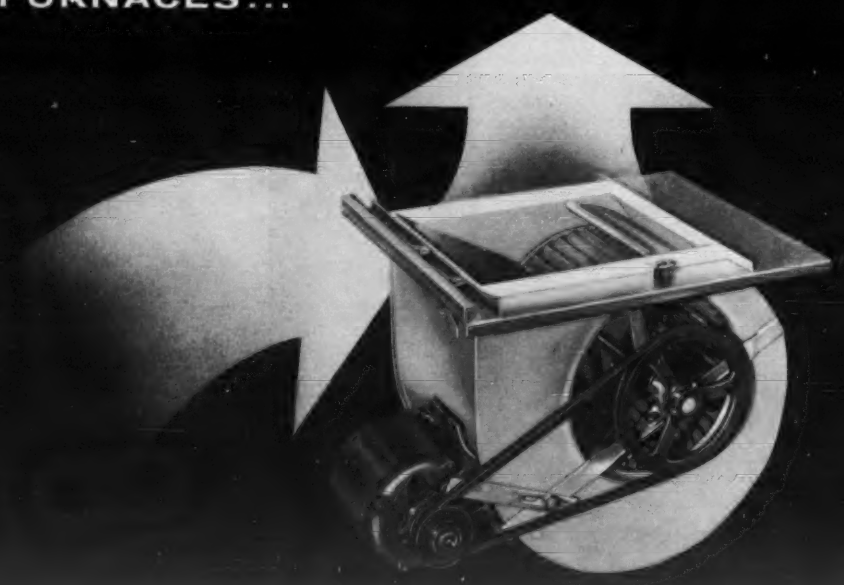
DETROIT — Air conditioning is now available for 1958 and 1959 Rambler American models as a dealer-installed option.

"We decided to add this feature to the Rambler American because of the growing popularity of the car and because so many motorists, especially in the south, who want to buy a small car want air conditioning," said Roy Abernethy, vice president of automotive distribution and marketing of American Motors.

The evaporator assembly is mounted below the glove box drawer on the right side of the dash panel. The unit, which is 15½ in. wide, 11½ in. deep, and 7 in. high, does not interfere with leg room, according to Abernethy.

The air conditioning system has three air deflector louvers which can be individually adjusted, a temperature control, and a three-speed fan. The entire system, including the evaporator, compressor, condenser, and receiver tank, weighs approximately 65 lbs. installed.

IT'S EASY TO SELL
THE VALUE LINE*...
FRASER-JOHNSTON
AIR CONDITIONING
FURNACES...

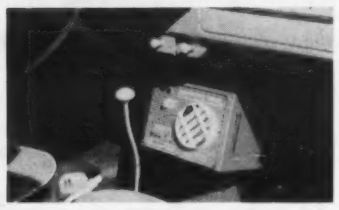


The 13 1/8" diameter blower in all FRASER-JOHNSTON belt-drive furnaces is larger than most others in the industry. This means more air handling capacity at low tip speed – the secret of quiet operation. *Other values include:* rubber mounting, precision-ground steel shafting, Oilite bronze bearings, and slide-out blower and motor for easy service. All FRASER-JOHNSTON belt-driven furnaces are available with 0.6 in. AGA high static approval. Get acquainted with air conditioning's VALUE LINE. Write for catalog, prices and distributor opportunities.

*Top quality warm air furnaces, evaporators and condensing units for all-year residential and commercial air conditioning installations.

Fraser-Johnston 1900-17th Street • San Francisco, California

'Continental Voyager' Designed for Small Car with Limited Horsepower



ABOVE: Underdash evaporator unit has pushbutton controls, thermostat, and directional air louvers. The "Continental Voyager" also includes a thermostatically controlled magnetic clutch, specially designed for the unit.

LEFT: European-made "Bock FK-1" compressor mounted in trunk requires only 1.7 hp. when car is operating at 70 m.p.h., according to Forston Co., who manufactures the unit designed for small cars.

HOUSTON, Texas — An air conditioner exclusively for small cars with limited horsepower engines is being manufactured by the Forston Co. here.

Called the "Continental Voyager," the air conditioner features a European-made "Bock FK-1" compressor, claimed to be a special compressor made for air conditioning small European cars. At 70 m.p.h., the compressor requires only 1.7 hp., Forston said.

The air conditioner features underdash evaporator unit, pushbutton controls, thermostat, directional air louvers, and thermostatically controlled magnetic clutch. The clutch has been specially designed for this unit, Forston said.

Other features include steel cabinet, all chrome front panel, and high-low-medium selector for air circulation.

All parts, including mounting parts, are readily adaptable for mounting in limited working spaces around engine and inside cars.

4-Page Folder Tells 'Kab Kooler' Story

MINNEAPOLIS — How the "Kab Kooler," a self-powered, self-contained truck cab air conditioner makes the driver's cab the "most comfortable spot on the road," is told in a four-page folder offered by D. W. Onan & Sons, Inc. here.

The bulletin (Form F-107) describes and illustrates typical installations of this air conditioning unit on truck cabs, cranes and shovels, field offices, and other vehicles of a size that fit the unit's cooling capacity.

How the "unitized" Onan engine-compressor and in-line design of the Kab Kooler saves weight and simplifies maintenance problems is explained in simple language, the company said. A brief explanation of installation and servicing procedures is also given.

Mark Williams Named By Mark IV Outlet

MEMPHIS—Tennessee Liquified Gas Co. here has announced the appointment of Mark Williams to its Mark IV auto air conditioner sales and service staff.

Williams will assist Roy Wakefield, air conditioning service manager for the company.

J. S. Jones, president, said the firm can install a unit in a car in half a day. Shop is at 3956 Jackson Ave.

Special Auto Air Conditioner Section

***AUTOMOBILE AIR CONDITIONING** is the topic of this section which starts on page 24 and runs through page 29. New products, statistics, and service material are included in this material. A story on auto air conditioning sales starts on page one.*

"Servicing Auto Air Conditioners" (Vol. 4), written by C. Dale Mericle, starts on page 35 of this issue with a description of Eaton models and how to service them.

Under-Dash, Reverse Cycle Automobile Heating, Cooling Unit Offered by Capitol

DALLAS—Capitol Refrigeration, Inc. here is introducing this month a reverse cycle under-dash type auto air conditioning and heating unit.

The new "Artic-Kar" unit is composed of a York compressor with automatic clutch thermostatically controlled for both heating and cooling.

One heat transfer surface is mounted in front of the radiator. It serves as condenser during air conditioning and evaporator during heating cycle.

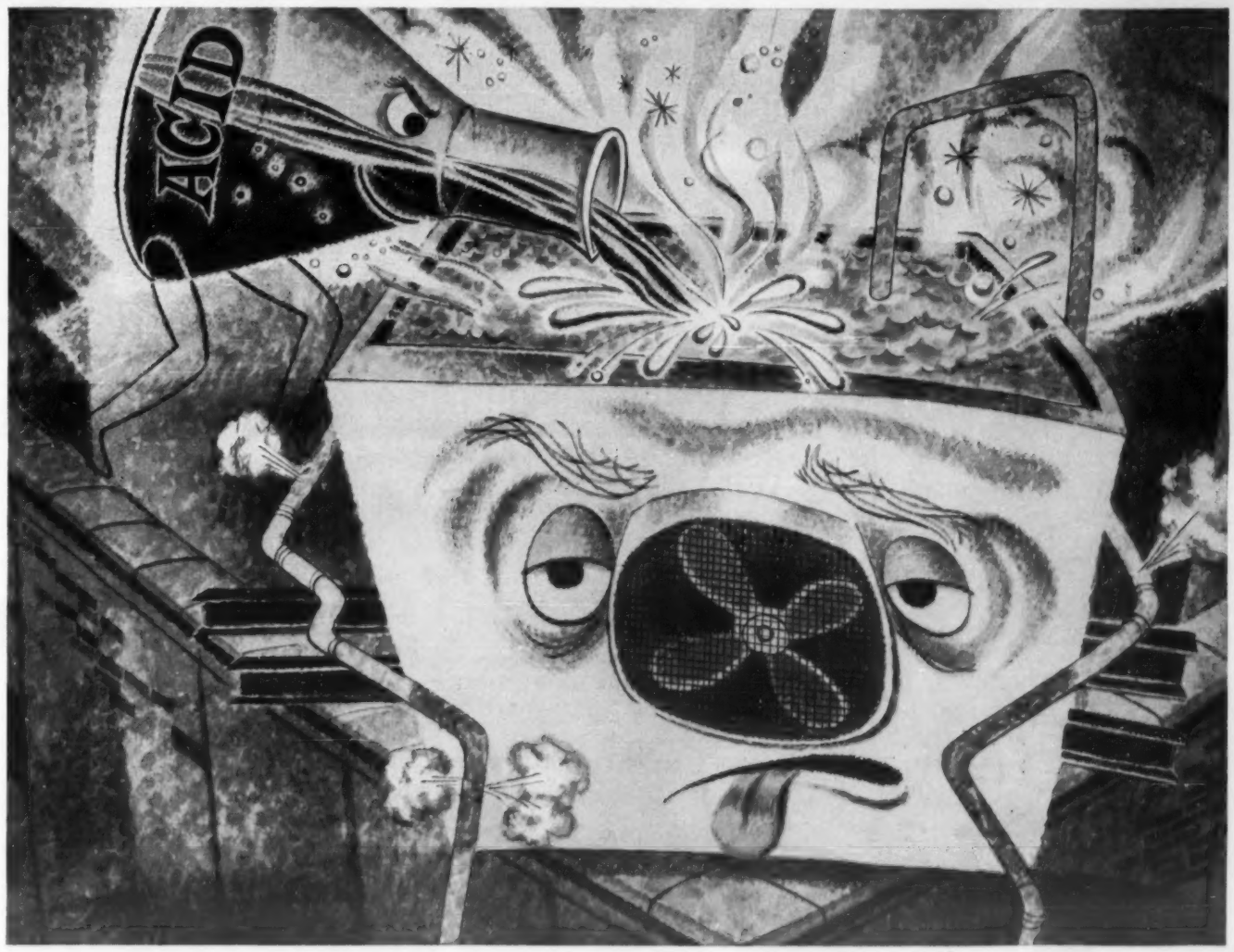
The other heat transfer surface is mounted in an underdash case. It serves as evaporator during air conditioning and condenser during heating.

A toggle switch changes the unit from heating to cooling. Set in either position, a thermostat automatically controls air temperature.

Company officials said the unit has been tested for the past six months. During final test of the heating cycle, air delivery temperatures ranged from 110 to 140° F. with outside temperatures of 0° F. and above.

Instant heat is the prime advantage of this unit over the water heater supplied by the factory, the company claimed.

NEWS readers are invited to write to the editor giving their opinions on any subject of interest to the industry.



BEFORE YOU BUY, THINK:

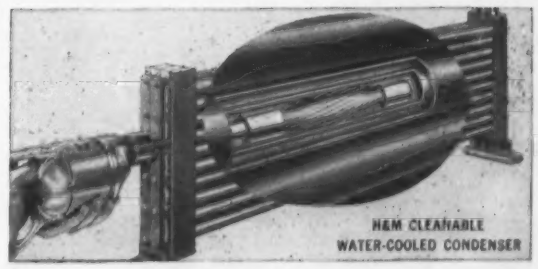
Will acid upset your cooling water system?

NOT if your water-cooled refrigeration condensers are cleanable mechanically like Halstead & Mitchell's

Scale and sludge deposits seriously reduce heat transfer in condensers and affect system performance unless removed. Deposits can be cleaned from H&M water-cooled condensers safely with a simple, mechanical tool—faster, more completely and at less cost! No need to risk acid damage to condensers, cooling towers and pumps.

Halstead & Mitchell condensers have brass headers which are easily and quickly removed for cleaning. Seamless copper tubing is arranged in double-tube design for true, positive counterflow heat exchange. U/L approved, condensers are readily set up in racks with multiple condensing units. Ask your local wholesaler for complete information, or write to Halstead & Mitchell, Bessemer Building, Pittsburgh 22, Pennsylvania.

Water-Cooled Condensers · Cooling Towers · Air-Cooled Condensers · Finned Coil Products



H&M CLEANABLE WATER-COOLED CONDENSER

HM Halstead & Mitchell

Chart I—Estimates of Automobile Air Conditioner Sales by Manufacturer

INDEPENDENTS

Manufacturer	1958	1957	1956
A.R.A. Mfg. Co.	23,591	15,100	13,500
Artic Kar-Capitol Ref'n	5,000	3,500	3,000
Clardy Auto A.C. Co.	6,500	6,800	6,000
Climatic Air Sales Co.	3,500	2,000	2,000
Forston Co.	1,500	N.A.	N.A.
Frigikar Corp.	21,652	22,100	12,000
Frigiquip Corp.	9,000	N.A.	N.A.
Kauffman Air Conditioning Co.	6,483	6,200	N.A.
Mark IV Div., Mitchell Co., J. E.	20,000	15,700	17,000
Mobil Air Mfg. Co.	1,980	1,500	1,500
MoPar Div., Chrysler Corp.	8,000	15,380	2,300
Novi Sales Co.	5,000	6,000	10,000
Parkomat Sales Co.	7,500	7,850	6,000
Sears, Roebuck & Co.	5,000	3,500	N.A.
Sutton Co., O. A.	15,000	11,000	N.A.
Others*	2,950	25,700	16,000
Total	**142,656**	**142,330**	**89,300**

AUTOMOBILE MANUFACTURERS

Manufacturer	1958	1957	1956
General Motors			
Buick	29,596	35,000	32,000
Cadillac	41,804	46,476	38,610
Chevrolet	40,000	38,000	17,000
Pontiac	9,000	12,360	15,000
Oldsmobile	40,093	38,933	35,000
Chrysler Corp.			
Chrysler, Imperial	11,270	19,429	7,500
DeSoto	2,900	6,102	2,700
Dodge	6,100	8,674	1,500
Plymouth	7,700	10,415	1,000
Ford Motor Co.			
Ford Div.	26,984	17,000	25,000
M-E-L Div.	19,346	24,213	11,000
American Motors	6,237	6,301	6,500
Studebaker Corp.	181	171	..
Total	**241,211**	**259,903**	**195,810**
Grand Total	**383,867**	**402,233**	**285,110**

* Air Controls Corp.; Auto Temp, Inc.; Cartrol Corp.; Great Northern Mfg. Co.; International Auto Air Conditioning Co.; Klauss-Joyce, Inc.; Kool Engineering Corp.

Chart II—Automobile Air Conditioner Sales by Region, 1957 - 1958

Region	1958 % of Total Sales	1958 Unit Sales	1957 % of Total Sales	1957 Unit Sales
Southwest	54.1	207,672	44.0	176,983
Southeast	18.7	71,783	24.4	98,145
Midwest	12.8	49,135	15.9	63,955
West	10.2	39,154	10.4	41,832
Northeast	4.2	16,123	5.3	21,318
TOTALS	**100.0**	**383,867**	**100.0**	**402,233**

Auto Air Conditioner Sales--

(Concluded from page 1)

manufacturers were accomplished by their dealers, with of course, the percentage of factory installations varying greatly by company.

As an example, all of the 41,804 installations credited to Cadillac Div. were made at the factory, while only 47% of the Ford Div. units were factory installed. Chrysler Corp. divisions reported only factory installations, dealer installations being included in the MoPar Div. sales.

In the southwest, hotspot for automobile air conditioners, installations rose 12% over 1957 increasing that region's percentage of total sales to 54.1% from the 44% it held in 1957. Chart II lists the regional breakdown of automobile air conditioner sales for 1957 and 1958.

It is estimated that production of automobile air conditioners totaled 415,000 during 1958, indicating a carryover of 35,000 units into 1959.

Only 2.7% of the installed units were not of the "front end" or "hang on" types.

With automobile sales slated for a healthy increase this year, most automobile air conditioner manufacturers are predicting healthy sales gains of from 5 to 20% for their company and the industry as a whole. Consensus seems to be that automobile air conditioner sales should range from 450,000 to 500,000 during the 1959 calendar year.

In the period from 1953 through 1958 1,371,700 automobiles have been air conditioned. Listed below are automobile air conditioner sales by year for this period:

Year	Unit Sales
1953	40,600
1954	90,000
1955	176,000
1956	285,110
1957	402,233
1958	383,867

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Operating Costs of Residential Air Conditioning and What This Means to Dealers and Installers. By R. A. Gonzalez—25¢ each.

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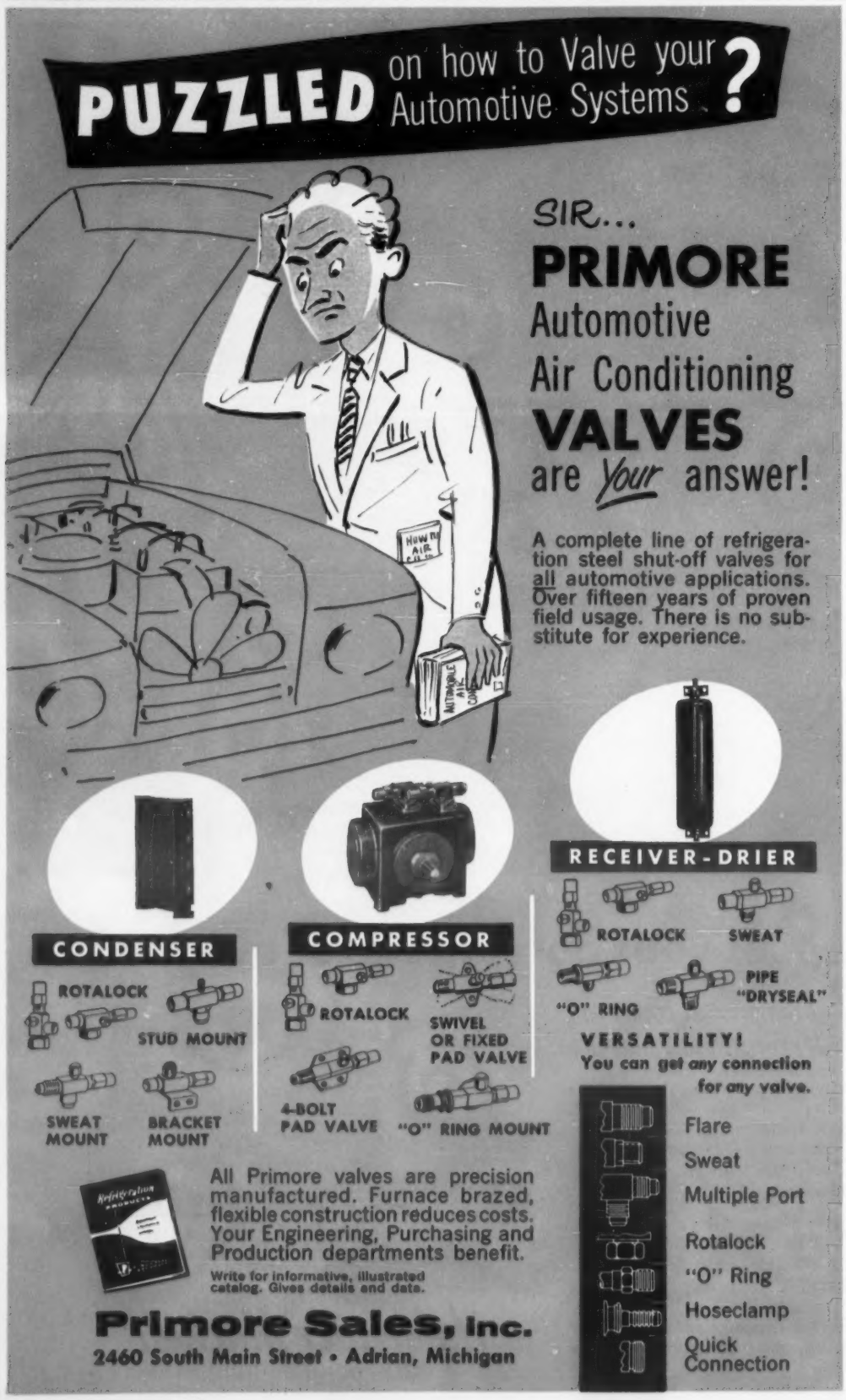

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Service Programs for Chrysler Systems

Reference Book, Film In Master Technicians Program Describe Correct Practices, Proper Use of Instruments

DETROIT — Proper check-up and service practices on air conditioning systems installed in Chrysler Corp. produced 1959 automobile models are being covered in material that is part of Chrysler's Master Technicians Service Conference program.

The material for this training program is now going out to dealers. It is prepared by Ross Roy, Inc., working in collaboration with men from various Chrysler divisions. The material includes a strip film and sound track, a service reference book, wall chart, meeting guide for the conference leader, and questionnaires for each technician.

Naturally, much of the material is concerned with special elements in the design of the systems used in the Chrysler-built automobiles, and this year special attention is focused on the new system of pushbutton-controlled vacuum actuators, which operate doors and a damper to direct air flow.

However, the service reference book also includes considerable information on good service practice in general, which might be applied by anyone servicing auto air conditioning systems. Among these are:

"In testing performance of the system, make this test only when room temperature is 75° F. or higher. Testing the system in a room colder than 75° F. will only give a false picture of what the system can do. . . .

"You'll find it pays to keep a squirt or pressure-type oil can filled with refrigerant oil on hand. You'll need it if you have to replace a piece of tubing or hose. The threads of both connections, for example, should be lubricated. . . .

"Always use new copper gaskets when you reconnect brass to steel, or steel-to-steel connections.

"In checking with the sight glass, block the air flow across the condenser to boost discharge pressure to between 225 and 250 p.s.i. Then check the sight glass for foam. If the sight glass has no foam, unblock the condenser and let discharge pressure return to normal.

"If you notice foam, it means the system is low on refrigerant. In this case, maintain discharge pressure at 225 to 250 p.s.i. and add refrigerant gas through the suction side until the foam clears. Then add exactly ½ lb. more. . . .

"Foreign matter on the condenser or sub-cooler fins will decrease heat dissipation, which will affect the efficiency of the system and increase the load on the engine. So, clean the fins, if needed. Also, check for bent fins. . . .

"Bug screens are not recommended for cars equipped with air conditioning as they decrease the flow of air through the radiator and condenser. . . ."

The "cool-down" test for the Chrysler systems involves a number of instructions that are pertinent to the Chrysler design only. However, some which may be useful to servicemen generally are:

"Fully extend the outlet grilles to direct air flow toward the rear of the car. In the right-hand outlet grille, insert a thermometer. Then, start the car, and adjust engine speed to 1,250 r.p.m. . . .

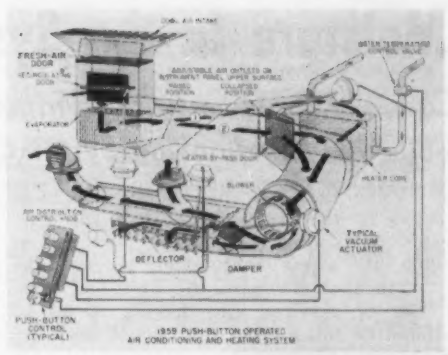
"The 12-volt motorized psychrometer is recommended for air conditioning service departments.

"Put a motorized psychrometer near the air inlet grille for wet bulb-dry bulb readings. Then, run the engine for 15 minutes to get it up to operating temperatures, and stabilize the air conditioning system. . . .

"The performance test must be made at a discharge pressure between 190 and 210 p.s.i. If necessary, block the condenser to increase pressure; use an outside floor fan to increase air flow through the condenser and decrease pressure. . . .

"If the discharge temperature is above the maximum allowed on the performance chart, you'll have to inspect the fit of the expansion valve thermal bulb in the suction line well.

"The bulb should be a wedge fit using brass shims between the top of the well and the thermal bulb. Thoroughly coat the thermal bulb with 'Thermal Mastic.'"



DRAWING at left is typical of those used in Chrysler Corp.'s "Service Reference Book" which is part of the Master Technicians training program. Illustration shows the air distribution system in 1959 models, and operation of pushbutton controls.

THIS PICTURE is a reproduction of the strip film which is part of the Master Technicians training program on auto air conditioning service. Small cartoon figure is "Tech" who does the main audio part in the film. Instrument on hood is motorized psychrometer, located at air inlet grille during cool down test.

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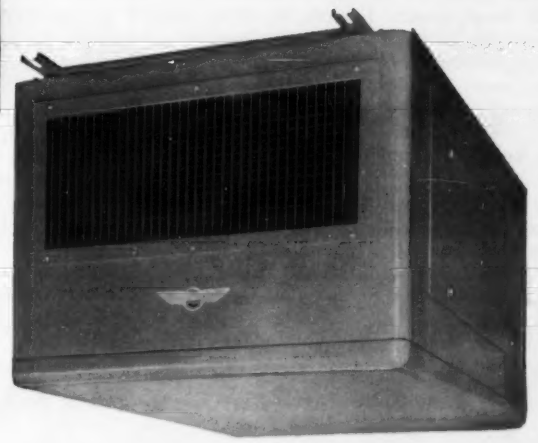

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AH-2	800	2.06	61.8	57.4	22¾	30	46⅞
AH-3	1200	3.27	60.7	56.8	22¾	35	46⅞
AH-5	2000	5.39	61.0	56.9	22¾	50	46⅞
AH-8	3000	8.16	60.7	56.8	25¾	61	46⅞
AH-10	4000	10.88	60.7	56.8	31¾	61	46⅞

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Moisture In the System

It Is Major Cause of Problems with Refrigerant Control Valves In Automobile Air Conditioning Systems, Analysis Shows

DALLAS — Moisture in the system is the major cause of problems with refrigerant control valves in automobile air conditioning systems, Vince Reynolds of Controls Co. of America, told an Automotive Air Conditioning Forum sponsored by the Texas Section, Society of Automotive Engineers.

Reynolds said that an analysis of expansion valves returned to the factory with the complaint that they were defective revealed that only 10% of such returns had a manufacturing defect. Of the rest, most of them had been returned because the system to which they were applied had moisture in it.

"In talking to the various manufacturers, distributors, dealers, and installers of automobile air conditioners I have heard from time to time a complaint of expansion valves sticking open, closed, or not properly feeding the system or evaporator so that maximum efficiency is being obtained from it," Reynolds said.

"I have also had field installers tell me that they have spent a considerable amount of time servicing a unit out and then, after servicing the unit, run it in their shop. In their shop the unit performed to all expectation but the customer is back the next day. When the customer returns the next day it seems that after leaving the shop where the unit had been serviced and driving 30 to 40 miles, the unit would stop refrigerating or blowing cold air and start blowing hot air.

"This is a definite indication of moisture in the system and that the moisture changed into ice and blocked the orifice of the valve which in turn eliminated refrigeration entirely."

Reasons for Moisture Entering System

Reynolds said he tracked down these various complaints and in checking systems through was able to pinpoint the difficulty that was occuring as being caused by moisture.

Some of the reasons for moisture entering the system were listed as follows:

1. Entrance into the system due to faulty drying of equipment at the factory or during the assembly of components in the field.
2. Wet oil and/or refrigerant.
3. Low side leaks which will allow moisture laden air into the system such as a compressor seal leak.

"In applying moisture problems to the specific field of automobile air conditioning," Reynolds stated, "I find that when a unit is installed in the field no actual effort is made to remove the moisture from the system that has accumulated in it during its make-up.

"In checking the various compressors and the means of installation in the field I find that the maximum vacuum that the system compressor can pull is approximately 28 in.; on the other hand, if a hermetic compressor is used, one that has been modified to pull a vacuum on a system, again the best vacuum we can pull is about 28 in.

"At a 28-in. vacuum the boiling point of water is approximately 140° F. and this means that if the unit is installed on a 90 or 100° day and if a large amount of moisture has accumulated in the system during its make-up, we have not pulled a low enough vacuum on the system to cause the moisture that has accumulated during its make-up to evaporate so that it can be removed by the vacuum pump.

29.5 In. Vacuum Needed To Remove Moisture

"In order to remove any moisture that has accumulated in a system during its assembly a vacuum of approximately 29.5 in. must be pulled on the system. At a 29.5-in. vacuum the boiling point of water is 59° F. and if we can get a low enough vacuum so that the boiling point of water is at a low temperature we will be able to vaporize the moisture that has accumulated in the system and remove it from the system with a vacuum pump.

"By way of example, if we are able to pull a 29.5-in. vacuum on our system this means that we will be able to vaporize the moisture that has accumulated in the system at 59° F. If the work is being done on a 100° F. day we have a temperature difference between water in the system and the outside or ambient temperature of approximately 41° F. With such a large temperature difference and pulling such a great vacuum on the system we will be able to vaporize moisture which has accumulated in the system and be able to remove it with a vacuum pump.

"In using the system compressor or modified sealed compressor a low enough vacuum cannot be obtained on the system to remove any of the moisture which has accumulated in the system during its physical makeup and the result is that we are reducing the capacity of the drier or drier receiver that has been installed in the system because we depend upon moisture removal taking place by means of our drier or drier receiver.

"Let us now analyze our drier or drier receiver capacity. In checking we find that the average drier or drier receiver will pick up approximately 50 drops of water. In a refrigeration system we talk of a moisture level that must be maintained in terms of 'parts-per-million' which means that we must have one part of water for every million parts of refrigerant.

"To convert drops of water to parts-per-million we use a factor of approximately 110 parts-per-million for every drop of water—from this we can see that a drier receiver, or drier used by the various manufacturers of automobile air conditioning systems, has a large reserve capacity and will pick up approximately 5,000 parts-per-million of moisture.

Sporlan Distributes Hubbell Valves

ST. LOUIS—Distribution arrangements were recently completed between Hubbell Corp. of Mundelein, Ill. and Sporlan Valve Co. here, the latter firm announced.

This affiliation now affords a source of supply to the users of "Peak Performance Products," it was stated.

"The principal products being added to the Sporlan line by [illegible] back pressure regulating valves, combination back pressure and stop valves, plus large capacity solenoid valves," the announcement [illegible]

"These are natural [illegible]

Here's why Sporlan chose Hubbell Valves...

• For a reliable source and a top quality line of back pressure regulating valves and combination back pressure and stop valves, plus large capacity solenoid valves Sporlan chose Hubbell Controls. They will augment the now famous line of Peak Performance valves and accessories of Sporlan. Quality cannot be compromised for price . . . neither can the long standing reputation of Sporlan.
• Hubbell's precision made controls are a well known hallmark in the refrigeration and air conditioning industry.
• Hubbell Controls may be slightly higher in cost but the combination of control dependability and precision craftsmanship will save you costly shut-down time.
• So . . . buy nothing less than the best . . . it's quality and performance that counts. You can be assured of both with Hubbell and Sporlan controls.

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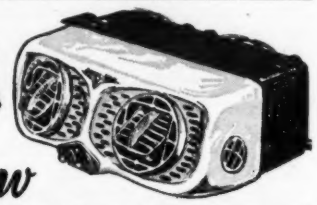

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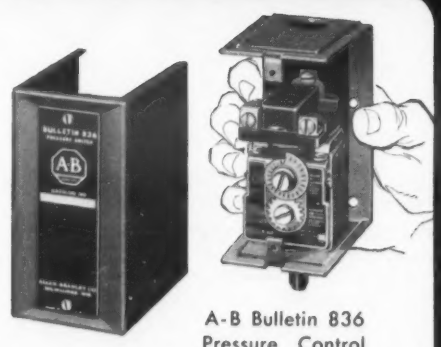

A-B Bulletin 836 Pressure Control

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Allen-Bradley Co., 1313 S. First St., Milwaukee 4, Wis.
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ALLEN-BRADLEY
Quality Motor Control

"This reserve capacity is fine, but it must be recognized that in working with a drier, or drier receiver, we are working with an item that has a saturation point and periodically it must be replaced.

"The moisture level for operations in the system where no corrosion will result, according to manufacturers of large commercial units, is 26 - 27 parts-per-million of moisture and for domestic units it is approximately 37 parts-per-million of moisture.

"At the present time there is no recommended moisture level for automobile air conditioning systems, but it might be well to point out that the moisture level for automobile air conditioning systems would be well below that recommended for large commercial units or domestic units because of the extremely high condensing temperatures that we encounter due to the variation of air over our condenser.

What Moisture Does

"It has now been resolved that moisture can get into the system and it presents a problem. Let's now see what it does in the system:

"1. Moisture freezes out at the expansion valve and blocks it.

"2. Causes corrosion of steel in the compressor and other components.

"3. Causes flapper valve or reed fatigue.

"4. Causes copper plating.

"In a refrigeration system moisture separates from the refrigerant and causes ice whenever the amount of moisture is great enough and the temperature of the refrigerant is low enough. By way of example, approximately 227 parts-per-million of moisture is soluble in Refrigerant-12 at 138° F. condensing temperature and at 200 lbs. head.

"At a low-side pressure of approximately 21 lbs. or a 20° evaporator only 16.6 parts-per-million of moisture is soluble in the refrigerant. From this we can see that as the liquid refrigerant passes through the thermostatic expansion valve it cannot hold its 227 parts-per-million of moisture and that as the temperature of the refrigerant is reduced it must give up its moisture because it can only hold 16.6 parts-per-million of moisture.

"The difference between 227 parts-per-million of moisture and 16.6 parts-per-million is 211 parts-per-million of moisture that is left to freeze out and form ice in the orifice of the thermostatic expansion valve; this may cause the valve to stick in an open position or it may cause the valve to stick in a throttle possition if the valve is modulating and again it may freeze and block the orifice completely thereby eliminating refrigeration.

"Besides blocking the orifice of the expansion valve moisture will react with the refrigerant, oil and the temperatures encountered in the system and form hydrofluoric acid. This acid will react with iron, copper, and aluminum to form sludges of a definite type and a chemical analysis of this sludge formed in a compressor shows that the origin of the sludge is moisture.

"The sludge in the system will cause corrosion and pitting of all the iron or steel parts in the system and will reduce their life. It also causes the flapper valves or reeds to fatigue in a short time and in general shortens the life of the system.

"The addition of moisture to a refrigeration system greatly reduces the life of the compressor and in talking to the people who repair compressors they claim that 25-35% of the replacement work which they do on compressors can be pinpointed as being caused by moisture.

Ways To Eliminate Moisture

"Moisture is your biggest enemy. Let's now discuss ways of eliminating it.

"1. Use care and be sure all components stay capped until they are to be used.

"2. Use caution, pressurize the system and check for leaks before pulling a vacuum on it as a leak in the system permits moisture laden air to enter it.

"3. After pressurizing the system and checking for leaks pull a deep vacuum to remove all air and moisture. Remember that a vacuum of approximately 29.5 in. is necessary to vaporize any moisture that has condensed in the various components.

"4. Change the drier receiver or drier when the system is open for service or whenever a shaft seal leaks.

"The drier and drier receiver currently used by various manufacturers of automobile air conditioning systems has a reserve capacity but that reserve capacity can be used up and it has a saturation point; as a result it is limited.

"I would like to ask that in the future we assume that the drier or drier receiver is saturated and we change it each time servicing a system is necessary. If an exact replacement drier receiver is not available, assume that the drier receiver is saturated, and install a separate drier in the system. Let the old drier receiver remain in its place doing the function of a receiver only.

"In discussing driers there is no tangible worth that can be attributed to them and in trying to determine the exact function of a drier in a system is like selling insurance; when you install a drier or a system it does not improve the function of the system but it insures you against further difficulty being encountered with the system because you are sure it has no moisture in it.

"Remember, satisfied customers are not made by having them come back and give you the complaint that they had driven 30 or 40 miles when the system stopped refrigerating. In many instances, since competition is keen, the return of a customer and the necessity of again reworking a unit eliminates any profit that may have been made.

"Remember the drier or drier receiver installed on the system you are working on has a limited capacity and that capacity, when used up, will present problems. The best way to reduce the number of problems encountered from moisture is to remember to replace the drier or drier receiver each time the unit is serviced."

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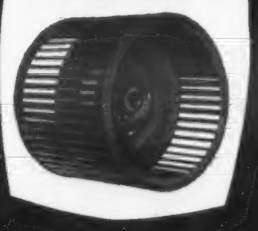

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. . . the car unit with national sales and service . . . national advertising!

DEALER PROFIT
North and South

Yes, it's already truly national, this auto air conditioning. Mark IV has made it that way, knowing that a national service organization would help each individual Mark IV dealer to sell. There are over 1500 Mark IV outlets — some of several years' standing as far North as Boston and St. Paul, as high as 5,000' Denver.

What's back of this success? The Mitchell Company will always build the finest unit current engineering can produce. If that makes Mark IV the biggest seller, fine. (We've been at, or close to the top for three years.) Bigness is nice — but quality comes first, for that's where lasting profit lies. We think you'll like it that way.

Dealer oriented program. Pricing, packaging, promotion are all planned for proper dealer profit. The factory holds regional service schools each year. The components are packaged for minimum dollar inventory. You get an advertising allowance and a full line of advertising aids. The exceptionally generous warranty policy is, alone, enough to attest the excellence of these units.

MARK IV DIVISION
JOHN E. MITCHELL COMPANY
3800 Commerce, Dallas, Texas

Send for details now...

JOHN E. MITCHELL COMPANY
3800 Commerce St., Dallas, Texas
I'd like information about a Mark IV distributorship or dealership.
Name
Company Name
City State
Type of business
We are ☐ are not ☐ rated in Dun & Bradstreet.

MORE COLD AIR, QUICKER COOL-DOWN . . . than any other leading brand. That's what actual tests show about the Mark IV Monitor. Its sleek styling gives it lots of sales appeal.

A PRICE LEADER WITH A PROFIT
The Mark IV Suburban lets you meet the price sellers head-on. An excellent unit comparable to the top unit of other lines, except in price.

GET A SHOT AT ALL THE BUSINESS
Many customers prefer the trunk model. It's out of the way and still out-cools the ordinary factory installation under the hood.

MANUFACTURERS OF FINE MACHINERY FOR MORE THAN HALF A CENTURY

TECHNICAL CENTER

By Frank J. Versagi, Technical Editor

Copper Tube / Aluminum Fin Coils and Corrosion (1)

Whenever a discussion of the general principles of corrosion gets specific, one of the practical questions raised has to do with corrosion of copper tube/aluminum fin coils. This happened again at the ASHAE symposium on water treatment and corrosion, where it was responsible for the liveliest discussion there.

There are those who consider the subject controversial and, with one or two exceptions, coil manufacturers prefer not to be quoted. Of these, many contend "We've used copper/aluminum coils for years; this proves their practicability."

And so it does, to a degree. But the fact that most of the world's major bridges are made of steel in no way alters the fact that steel rusts on occasion, and that this tendency to rust must be considered in any application of steel.

Corrosion is a sometimes thing.

In the field, corrosion will occur when it is least expected; it does not take place where we are sure it should. Even in carefully controlled laboratory experiments, it is impossible to get test reproducibility which approaches the accuracy of a beginning student in chem lab. An experimentally fabricated automotive assembly will withstand a "5-year" salt spray test —then rust through during the first winter on salted roads.

While it is obvious that the copper/aluminum coil has been successfully applied and has gained widespread acceptance, it is equally obvious that in a continuing minority of applications, this combination is nonuseable, and in some others it is used with uncertainty as to its lasting power.

One of the extremely few outspoken authorities on the subject, F. W. McKenna, chief engineer of Kennard Corp., states flatly, for example, "On a dry application, we will use a copper/aluminum coil; on a wet coil, we use copper tube/copper fin. We have tried copper/aluminum coils in wet applications and do not recommend them for such uses."

All Copper Will Not Do for Some Jobs

There are those applications where even the all-copper coil will not do. Some food handling jobs, as an instance, where acetic acid or other copper-attacking fumes are continuously or frequently present, will call for a stainless steel coil.

Between the applications where copper/aluminum can be safely used and those installations where it cannot, there is a broad line of demarcation where copper/aluminum coils may or may not present a corrosion problem.

Review of Segment of Corrosion Theory

To understand why this is so, we will have to review a small segment of corrosion theory and apply it to the metal combination being discussed. (A full layman's discussion of the principles of corrosion is available in the NEWS' "Corrosion" reprint, 50 cents.)

Metals can corrode by direct chemical action of liquid or gaseous chemicals — as when iron dissolves in acid or copper statues and domes turn green.

Inside a pipe carrying water or other fluid, it is possible for pits to occur while the remainder of the tube is relatively unaffected. The cause here is a specialized type of chemical attack called concentration cell corrosion. It occurs when conditions are such that an uneven concentration of reactive substances or gases occurs over a localized area. Practically, this type of corrosion is caused by extraneous dirt already in the tube or introduced by the fluid; mill scale may also be a factor.

Either in a fluid stream or on atmospherically exposed surfaces, galvanic action is a frequent cause of metal destruction where the environment is aggressive at all. Highly misunderstood, galvanic action takes place when two unlike metals, like copper and aluminum, are in contact with each other and are exposed to corrosive media.

(To Be Continued)

Groundwork Being Laid for Organization Of RSES Chapters In Tucson, Phoenix

SAN LUIS OBISPO, Calif.— Contacts have been made which it is hoped will result in setting up chapters of Refrigeration Service Engineers Society at Phoenix and Tucson.

This was reported to the quarterly meeting of the board of directors, California Association, RSES, held here following the "workshop" program at California State Polytechnic college.

Also discussed were plans to interest RSES members and chapters in nearby states in joining area-wide activities of benefit to the industry.

If plans for new chapters work out, it is possible the 1961 annual regional meeting will be held in Tucson or Phoenix.

President Julian A. McPhee of California State Polytechnic college extended an invitation to RSES to hold next year's "workshop" in the Air Conditioning & Refrigeration Engineering building.

The board accepted the invitation and set up a committee to start work immediately on the 1960 workshop.

Dates for the 1960 workshop were tentatively set for Jan. 22-23.

Detroit Controls Pressure-Temperature Card Said To Furnish More Complete Data

DETROIT — Detroit Controls has issued a new pressure-temperature card claimed to provide more complete coverage than now appears on any other card.

With the temperature scale extended to over 200°, the card is useful in automobile air conditioning applications and the temperature range from -22 to 40° is in 1° increments, thus giving the user closer readings for R-12, it was stated.

Willis Stafford, division manager, sales promotion-advertising, said that the next printing is expected to have 1° increment R-22 figures available. From 40 to 50 the increments are 2°.

"With these accurate readings available in the widely used low commercial and air conditioning refrigerant temperatures, our pressure-temperature card should be popular with engineers and servicemen," said Stafford.

The cards may be ordered without cost from the Advertising Dept., Detroit Controls, 5900 Trumbull, Detroit 8, Mich., it was announced.

IMPROVED 30 MODEL, 1,000 THRU

D-H CENTRAL

30,000 CFM, H- AND V-SERIES

STATION AIR CON-

ARE MODULAR CONSTRUCTED

DITIONING UNITS

HAVE INSIDE MOTOR MOUNTING

HORIZONTAL MODEL

THE BEST OF PROVED-BEST FEATURES 'N SOME NEW ONES, TOO: SECTIONALIZED CONSTRUCTION. FULL ACCESS TO ALL EXPOSED AREAS. FRAME, STRUCTURAL STEEL ANGLES, WELDED FOR RIGIDITY. FAN SECTION MAY BE FIELD-ROTATED. FANS, FORWARD CURVE, DIDW, CAST IRON CENTER HUB. EXTRA DEEP COIL SECTION CAN ACCOMMODATE 10-ROW COILS. DRAIN CONNECTIONS BOTH ENDS. INSULATED DRAIN PAN INDEPENDENT OF UNIT. SELF-ALIGNING, LIFETIME LUBRICATED BEARINGS. HIGH, LOW VELOCITY FILTERS. SEND FOR TIME-SAVER "FAN PERFORMANCE CURVES"

d-h SINCE 1910

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DIVISION NATIONAL U. S. RADIATOR CORP.

3301 MEDFORD STREET

LOS ANGELES 63, CALIFORNIA

CABLE: CLICONI LOS ANGELES

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MICROMOTORS

One of largest stocks in the world!

MARVIN L. "FERGIE" FERGESTAD

FACTORY DISTRIBUTORS

CYCLO-FREEZE CORP.

6318 Cambridge, Mpls. 16, Minn.

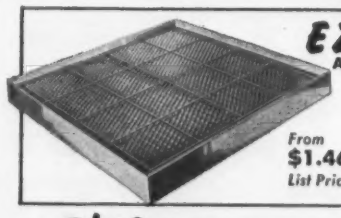
West 9-6794

NOW... STOP ROOM AIR CONDITIONER AIR FILTER PROBLEMS ...and profitably, too!

WASHABLE ALUMINUM TRIM TO SIZE EZKLEEN® FILTER

The perfect solution for those troublesome special sizes. Aluminum . easily cut with scissors or knife . . won't shed particles . . easy to wash. Eliminates large inventory of special sizes. Packaged in colorful polyethylene envelopes.

$1.75 LIST PRICE



EZKLEEN AIR FILTER FOR STANDARD SIZES

The high efficiency washable, aluminum filter in all standard sizes, in ½", 1" and 2" thicknesses. With the Trim-to-Size Filter, eliminate virtually all room air conditioner inventory problems.

From $1.46 List Price

plus ODOR REMOVAL Feature for EXTRA PROFITS

A sales feature you can offer only with R P Super Handi-Koter. This one pint container of water soluble Super Filter Coat, the dust, pollen, and odor-removing adhesive, with a built-in detergent, is a fast-selling, profit-making repeat item.

$1.25 List Price

RP® Products of Research

RESEARCH PRODUCTS Corporation

Dept. 20, Madison 1, Wisconsin

Norco Announces Reorganization, Expansion Plans

LOS ANGELES — Details of a reorganization and expansion program were announced by Norman H. Lee, president of Norco, Inc.

A line of new gas, and "Electrigas" convertible, refrigerators in 4 and 6-cu. ft. sizes are now in production at a new eastern manufacturing division located in Stroudsberg, Pa. These 1959 models have a new name, "Norcold."

Norco will also make available an improved model "Astral" 2-cu. ft. gas refrigerator "with a high capacity unit for tropical operation," and a further improvement has been made in simplifying of burner lighting "by the provision of a very easily used wick lighter," it was stated.

Lee indicated an "amazing growth" in the company's sales volume during the past four years. Projected 1959 volume has required the setting up of a number of divisions, he said.

These are: (1) trailer division, supplying the trailer and mobile home manufacturers, supply houses, and trailer dealers; (2) gas utility division; (3) LP gas division; and (4) appliance distributors and dealers. A number of personnel appointments have been made in each of these divisions.

A new unit re-charge station has been established at the Los Angeles headquarters with Laverne Youngblood as manager. A new cabinet repair department has been set up with Jack Kreutzer in charge. Roy Pruden continues in charge of shipping and receiving operations.

Warehouse stocks will be maintained at Stroudsberg, Pa.; Elkhart, Ind.; Chicago; and Los Angeles.

Lee announced the appointment of a new advertising director, Gerald Novorr, and The Rivkin Co. for publicity. A new integrated advertising and sales promotion program has been established.

During 1959, Norco plans to hold at least one major service school every two months with many small group meetings to be held in conjunction with the major gas utilities on a national basis.

Paul In New Marketing Position at Philco

PHILADELPHIA — Maurice G. Paul, Jr. has been named to head a newly-established distributor-dealer development department for the corporation's marketing division, it was announced by Henry E. Bowes, vice president-marketing.

Bowes explained that the new department was established to coordinate the company's program of assistance to distributors and dealers, both as regards their current operations and their long-range planning.

Paul has been associated with Philco since 1944, most recently as assistant treasurer, it was noted.

Experimental Refrigerator Goes Up or Down at Touch of Button

LOUISVILLE, Ky. — A refrigerator that goes up or down at the touch of a button has been designed by General Electric Co.

Called the PSR ("Power Storage Refrigerator"), it is designed to make foods on every shelf available to the housewife at the most convenient level—countertop height.

The PSR is one of three new experimental G-E appliances "intended to put storage space closer to hand and make it easier to use." The others are a "Refreshment Center" and a "Power Storage Center" (PSC).

Officials of General Electric's Major Appliance Div. emphasized that the three models are not for sale and are being shown to distributors, dealers, and the public to get trade and consumer reaction. PSR and PSC are full-scale working models. The Refreshment Center is a full-scale but not working model.

THIS G-E experimental model was developed to fill the needs of families in modern houses. Twelve-cu. ft. fresh food compartment rises out of base cabinet, can be stopped at any point so every shelf is always at most convenient level. Two freezer drawers hold 6 cu. ft.

The PSR offers a total of 18 cu. ft. capacity in a self-supporting unit 48 in. wide, 28 in. deep, and 54 in. high, in the lowered position. It has a stainless steel countertop.

Below the counter are two freezer drawers with a total capacity of 6 cu. ft. Behind the freezer drawers is the 12-cu. ft. fresh food compartment which, at the touch of a button, rises like a mechanized bookshelf, stopping at any level the housewife wants.

Commented W. M. Timmerman, general manager of G-E's Household Refrigerator Dept.:

"In the course of making stored foods more visible and accessible, we have come up with a totally new kind of refrigerator design which has some extra advantages.

"One is the convenient countertop which is an integral part of the unit. Another is the decorating freedom permitted by a refrigerator that can be used easily in peninsula or island arrangements, the plain back panel covered in any way the homeowner wants."

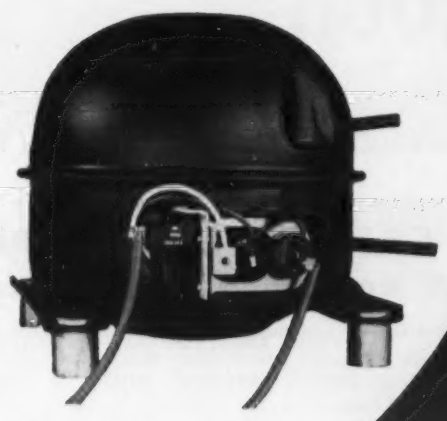
The Refreshment Center — a low, party-size refrigerator styled to fit in family room, living room, or dining room—would have an automatic ice maker, an ice water tap, and a 4-cu. ft. cold storage space.

The Power Storage Center has a set of shelves that rise out of the back of the countertop.

Klixon Protectors and Starting Relays Help

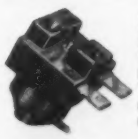
TECUMSEH ASSURE QUALITY PERFORMANCE of their compressors

Tecumseh Model AU Compressor — a thin, light-weight unit used for new "slim-line" window air conditioners — equipped with Klixon Protector.



Tecumseh Model T. Compressor — exceptionally small and conveniently-shaped for use in refrigerators and freezers. Cover removed to show Klixon Protector and Motor Starting Relay installation.

KLIXON Dome Mounted Protectors Permit maximum safe compressor performance under all conditions of load . . . shut the motor down when maximum allowable winding temperature is reached . . . automatically restart it when operation can be continued safely.



KLIXON Current Motor Starting Relays complete the combination required to start and protect the smaller horsepower compressor motors. Their positive action over a wide range of voltage and long life eliminate starting troubles.

KLIXON Hermetically Sealed Thermostats give reliable temperature control unaffected by frost, moisture, altitude or cross-ambient effect . . . available for heating or cooling applications.

Known world-wide for their dependability of operation and freedom from service problems, Tecumseh Hermetics are used as original equipment by more manufacturers of household refrigerators, room air conditioners and freezers than any other units.

To help maintain their enviable reputation for quality performance, Tecumseh Products Company uses KLIXON Motor Protectors and Starting Relays on many of their hermetically-sealed compressors. The reason . . . Tecumseh knows from experience that KLIXON Protectors permit maximum work output from compressor motors . . . and even under adverse operating conditions, safeguard their motors against overheating and possible burnout.

Tecumseh experience also indicates that KLIXON Motor Starting Relays assure positive starts and eliminate starting troubles.

You, too, can reduce costly service calls, repairs and replacements on your refrigeration equipment by using KLIXON Controls. Write for more information today.

METALS & CONTROLS CORPORATION

Spencer Division 2404 Forest St., Attleboro, Mass.

KLIXON®

Men on the Move . . .

Wolverine Tube, Div. of Calumet & Hecla, Inc.—ROBERT W. McKENZIE, formerly associated with Hayden Myer Co., has been appointed sales representative in the Birmingham, Ala. district. His territory will include the greater part of Alabama, southern Mississippi, and northwest Florida.

Plumbing & Heating Div., American-Standard — FRANK MACIELAG has been appointed sales manager of the Salt Lake City sales office. Macielag, who joined American-Standard in 1949, replaces JOHN W. WALLACE, JR., who was promoted to sales manager of the Cleveland sales office. Wallace replaces GEORGE W. PALMER, who was promoted to manager of sales coordination with headquarters in New York City.

Temco, Inc.—W. M. HOLLINGSWORTH, manager of special products and services, has been promoted to the additional and newly-created position of assistant to the president.

York Div., Borg-Warner Corp.—SIDNEY I. HANDLER, who headed room air conditioning distribution and sales for the New York branch of Airtemp Div., Chrysler Corp., was named district sales manager for room air conditioning in the northeast. DAVID A. SCHROM has been appointed works manager for the Grantley Works. He was formerly general plant superintendent.

Walworth Co.—New president is 38-year-old JOHN C. WALLACE, who has been vice president and general manager. FRED W. BELZ, former president, was elected chairman of the board. HAROLD BROWN, 34-year-old M.I.T. engineer who served as vice president and sales director for a New England foundry, was named vice president and general sales manager. New chairman of the executive committee is DAVID R. POKROSS, who has served for many years on the committee.

Boiler Div., Babcock & Wilcox Co. — CHARLES T. SMITH has been appointed an assistant marketing manager. Formerly sales engineer in the Philadelphia district office, Smith succeeds WILLIAM H. JACKSON, who was elected vice president in charge of sales of Diamond Power Specialty Corp., Lancaster, Ohio.

Trent Tube Co. — LYLE E. BAKER has been appointed assistant general sales manager. He has been sales supervisor.

Indiana Div., Robertshaw-Fulton Controls Co. — JOHN C. MEVIUS has been named sales manager. He joined the company in 1957.

Pittsburgh Corning Corp. — K. FRANK KENNEDY has been appointed general manager of the new Canadian office at 3333 Cavendish Blvd., Montreal, Quebec. He was formerly sales representative in the Boston district.

Hussmann Refrigerator Co. — GORDON R. GARREY, administrator of salary personnel, was appointed to the newly-created position of assistant director of industrial and public relations.

Embassy Steel Products — C. RUSSELL SCHLUTER has been appointed a district sales manager. He has been a sales engineer for the past three years.

Westinghouse Electric Corp. — Named regional managers to coordinate the support of utilities and builders in effecting the company's "Total Electric Home" program are:

Northeastern region — FRANCIS X. WINN, New York City; mid-Atlantic — HARRY A. CHENEY, Richmond, Va.; southeastern — JOHN G. ADAMS, Atlanta; central —HERMAN L. WILER, Mansfield, Ohio; northwestern — JOHN T. URBAN, Chicago; southwestern— CHARLES R. BEATTY, St. Louis; Pacific Coast—J. G. McKINLEY, San Francisco. All are veteran sales executives, chosen from distribution groups handling Westinghouse consumer products.

"Freon" Products Div., du Pont— KENNETH E. DALLAS and DONALD L. KJELLEREN have been assigned to the Syracuse, N. Y., and New York-New England territories, respectively, as technical sales representatives. Dallas has been sales correspondent in the eastern district office. Kjelleren was a chemist at the division's laboratory.

Viking Air Products — Appointment of DONALD L. LeBLANC as district sales manager for the New England territory was announced. He has been associated with Wm. Filene's, Boston department store, and Lever Brothers.

Propeller Div., Meier Electric— JOHN E. WATTS was appointed sales manager. He has been a sales representative.

Bally Case & Cooler Co.—MELTON KOCH has been named regional sales manager for Texas. Koch, who will make his headquarters in Houston, was formerly associated with Weber Showcase & Fixture Co. as regional manager.

Redisco, Inc.—Elected vice presidents were VAUGHAN A. KNUDSEN, comptroller since 1954, and NORMAN J. NIEBEL, whose special assignment is regional vice president for New York and New England. Niebel continues as vice president and general manager of Redisco of Canada, Ltd. JAMES O. MARTIN was advanced from assistant comptroller to comptroller, and WALTER J. VERPOORT has been appointed assistant comptroller.

Detroit Controls Div., American-Standard — LOUIS SZERECSEN and DON L. LEWIS have been named headquarters specialists in the sales department. Szerecsen was previously a product planning specialist. Lewis was formerly a test engineer for O. A. Sutton Corp.

Minneapolis-Honeywell Regulator Co.—FRED MAYTAG II, president of the Maytag Co., has been elected a director, increasing board membership to 12.

Westinghouse Appliance Sales—WILLIAM D. CALDWELL has been named to the new position of general credit manager. He was district credit manager in Atlanta.

Spencer Div., Metals & Controls Corp.—ROBERT G. METZGER has been named field engineer in the western Michigan part of the Detroit district. He was a sales engineer for Jervis Corp.

Sta-Rite Products, Inc. — R. E. BROOKER, president of Whirlpool Corp., and A. K. WALTON, a vice president of Sears, Roebuck & Co., have been added to the board of directors, increasing the board's membership to seven. ARTHUR R. STOCKER, formerly production control manager with A. O. Smith, was named assistant to the vice president of manufacturing.

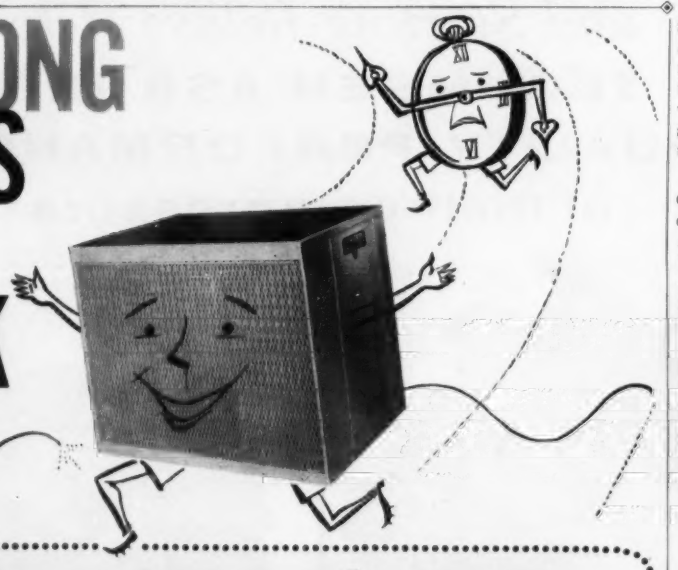
Davison Chemical Div., W. R. Grace & Co.—JOHN L. DOWELL, who has been with Davison since 1934, was named controller, Chemicals Div.

Heating & Air-Conditioning Div., Stewart-Warner Corp.—CLEMENT J. ARRI has been named district sales manager for eastern Missouri and central and western Illinois. He was formerly sales engineer for Sears, Roebuck & Co.'s Heating & Air-Conditioning Div. WILLIAM G. SCHANCK became district sales manager for Connecticut and southern New York state.

York Div., Borg-Warner Corp.— WALTER L. PHARO, who has been general sales manager, contract products, was transferred to Canadian Ice Machine Co., Ltd., Toronto, as vice president, general manager, and member of the board of directors.

General Chemical Div., Allied Chemical Corp. — JAMES W. SWAINE was appointed vice president in charge of research, engineering, and construction activities. He was succeeded as technical director by DR. HOWARD H. HURMENCE.

ARMSTRONG BEATS THE CLOCK



YOU CAN SAVE ONE DAY'S WAGES
on EVERY Armstrong Air Conditioning Installation

It's a fact . . . Armstrong air conditioners have been designed with the installer in mind. They include features which reduce installation time by many hours. Here's how:

	INSTALLATION TIME SAVED
Fully Charged at Factory	"X" hours
Remote Control Panel located near evaporator — only two power lines to condenser	"X" hours
Evaporators Complete with Cabinet — No on-the-job cabinet building required	"X" hours
Liquid Level Test Ports — Save time in checking refrigerant charge	"X" hours
Purging Port — Simplifies air evacuation and purging	"X" hours
Evaporator custom built to fit Armstrong furnaces	"X" hours
Condensing Unit Factory Assembled. No internal wiring and tubing work necessary	"X" hours

Actual time saved varies with the individual and the area.

TOTAL TIME SAVED ON EACH ARMSTRONG INSTALLATION APPROX. 9 HOURS

Consider too the Service Time saved from call-backs that don't happen with Armstrong units . . . and the Sales Time saved when one satisfied customer recommends Armstrong to another.

Armstrong has a full line for every residential and commercial installation — all types of evaporators for use with any warm air furnace — or used independently. Available in models 2, 3, and 5.

Send us a post card for more information — or better yet, call your Armstrong wholesaler. He's listed in the phone book.

ARMSTRONG FURNACE COMPANY
Columbus 8, Ohio
DIVISION OF NATIONAL UNION ELECTRIC CORPORATION

ARMSTRONG FURNACE COMPANY

WATSCO presents THE NEW derco TERMINAL SEAL

PART NO. T-300-B

Seals terminal leaks on sealed units instantly and permanently right on the job

U.S. PAT. NO. 2,451,701 & ADD. PAT. PEND.

CHECK THESE FEATURES

- Overall height short enough to allow terminal cover replacement
- Installed in just 3 minutes
- Bakelite body—not affected by temperature changes
- Each seal has its own electrical connector
- Cannot short out
- Each seal has a nylon insulator cap for added electrical protection
- High dielectric strength

DESIGNED FOR USE ON THE FOLLOWING UNITS

Coldspot, Copelametic, Crosley, Frigidaire, General Electric, Gibson, Kelvinator, Montgomery Ward, Norge, Servel, Tecumseh, York, etc.

SPECIAL NUT REMOVER

Included in each set of **derco** seals, AT NO EXTRA CHARGE, is a time and labor saving tool, specially designed by **derco** to facilitate the removal of frozen or rusted nuts from the terminal posts. This duo-purpose tool may also be used for tightening the terminal seal on the dome — A must for all servicemen.

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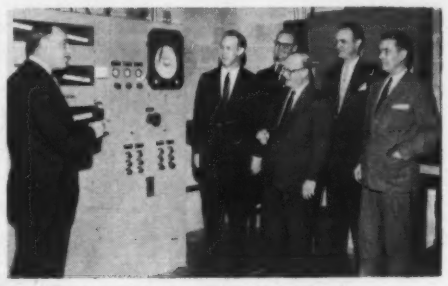

RAYMOND K. Serfass, general manager of Westinghouse Air Conditioning Div., reviews laboratory test performance of air conditioning products planned for 1960. Listening to Serfass are, (l. to r.) E. M. Bevington, southeastern zone manager; A. L. McDonald, Jr., western zone manager; W. B. Cott, northern zone manager; R. D. Hartsig, Pacific Coast zone manager; and D. R. Meckstroth, manager of marketing.

Westinghouse March Billings--

(Concluded from Page 1, Col. 2)

Attending the meeting were the division's top field sales managers, E. M. Bevington, southeastern zone manager, W. B. Cott, northern zone manager, R. D. Hartsig, Pacific Coast zone manager, and A. L. McDonald, Jr., western zone manager.

In congratulating the four zone managers on their record performance, D. R. Meckstroth, manager of marketing, remarked that one of the most encouraging aspects of the year's performance to date was the greatly increased retail activity.

"Warehouse withdrawals are running well ahead of last year," he added, "and distributor inventories are at an all-time low."

The Staunton plant manufactures heating and air conditioning equipment for the residential, commercial, and industrial markets. Heat pumps and residential electric heating products are also manufactured here.

List Stockholders OK Glen Alden Merger

NEW YORK CITY—At their recent annual meeting here, stockholders of List Industries Corp. approved a plan to merge the widely-diversified firm into Glen Alden Corp.

If Glen Alden holders approve the proposal at a meeting on April 21 in Wilkes-Barre, Pa., Glen Alden will be the surviving company. The firm is the parent company of The Mathes Co., Fort Worth air conditioner and heat pump manufacturer.

A List subsidiary already owns 39% of Glen Alden stock.

Glen Alden has a $9,800,000 tax loss carry-forward, which would be applicable against the future income of a merged company. This carry-forward has been cited by both firms as a key reason behind the decision to merge.

Judge Rules Water Fee Unreasonable--

(Concluded from Page 1, Col. 5)

surcharges on air conditioning units.

David Newman, attorney for the Palmer Park and Tuxedo theaters in the Highland Park suit, is also plaintiff's attorney in the Detroit suit.

He noted that the suits are different. Whereas Highland Park avowedly adopted the water restricting ordinance to save water, Detroit's intent is to equalize water charges.

Judge Baum noted in his opinion that while Highland Park may have suffered a water shortage during the extremely hot summer of 1955, such is no longer the case.

Improvements since then in the city's water transmission and purification systems make it possible now to handle peak loads easily and, with current improvements, to meet any foreseeable loads even with the 3,300 tons of non-conserving air conditioning equipment operating unrestricted.

Judge Baum said that he must "consider not what was a reasonable legislative action at the time of enactment, but what is reasonable now.

"Is it reasonable to exact a prohibitive fee from persons whose use of water is no more culpable or socially immoral than that made by persons who bathe themselves or wash dishes or clothes, or who sprinkle their lawns? I think not."

Despite the city attorneys' arguments to the contrary, Judge Baum held that the city, in its capacity as a public utility—a supplier of water—cannot discourage or prohibit a particular demand for water which is not *malum per se* (bad in itself).

When the supply of water increased, he asserted, the city should have repealed its ordinance or at least provided for relief in case of hardship.

The judge took particular note of the fact that while the city passed an ordinance intended to prohibit the use on non-conserving air conditioning equipment, it merely requested citizens not to sprinkle their lawns.

He observed that evidence showed the request was not heeded.

He pointed out also that evidence indicated that lawn sprinklers used 5 to 5.5 million gallons of water per day where the non-conserving air conditioning equipment used from 1.8 to 3 million gallons per day.

(10 ton AIRVEC installation on roof of Daylight Grocery, Jacksonville, Fla.)

EDWARDS AIRVEC

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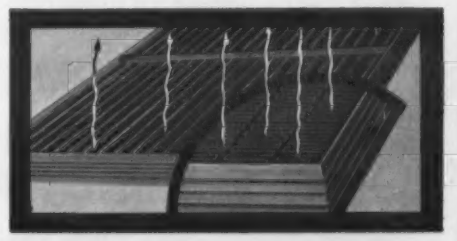

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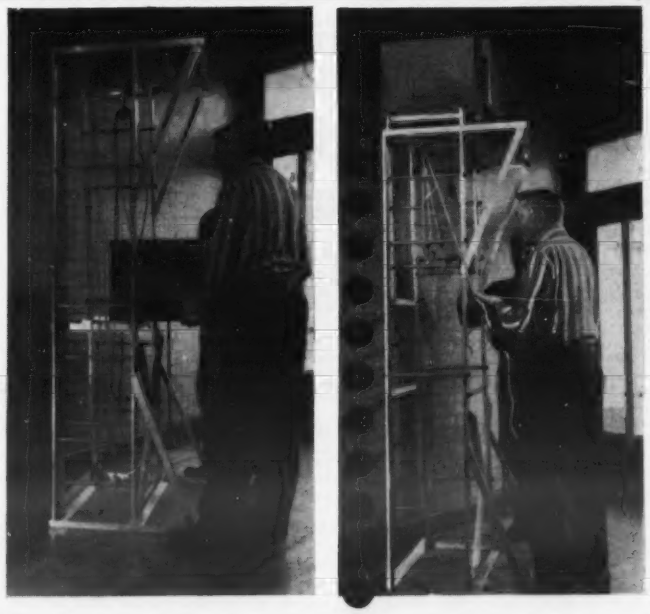

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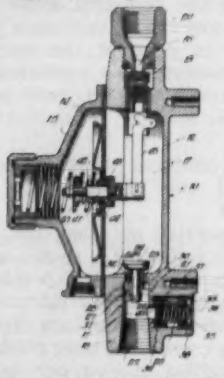
AMBLE 157-06 NORTHERN BLVD. FLUSHING, NEW YORK

PATENTS

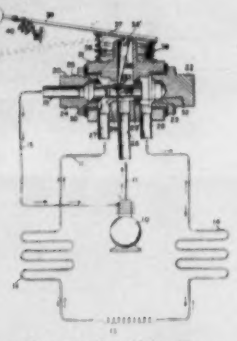
Week of Jan. 6 (Concluded)

2,867,234. PRESSURE REGULATOR SAFETY VALVE. Evans B. Billington, Chicago, Ill., assignor to The Bastian-Blessing Co., Chicago.



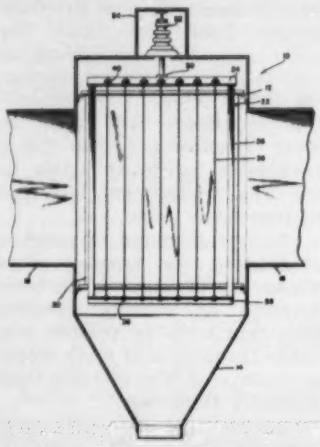
1. In combination with a fluid pressure regulator for delivering fluid at a predetermined reduced pressure, said regulator having a pressure chamber therein, a safety device connected to said regulator and comprising a body having a passage therethrough in direct communication with said chamber for the flow of fluid at reduced pressure from said chamber, an excess flow check valve in said passage closing in the direction of fluid flow and constructed and arranged to completely arrest flow through said passage, the upstream face of said check valve being subject to the pressure of fluid flow. . . .

2,867,237. VALVE CONSTRUCTIONS. Walter F. Allingham, North Syracuse, N. Y., assignor to Carrier Corp., Syracuse, N. Y.



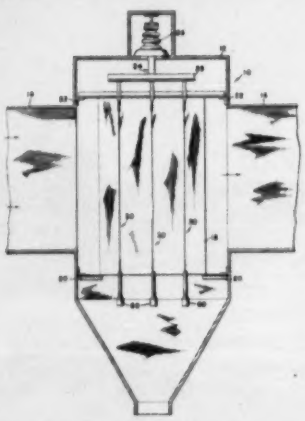
1. In valve construction, the combination of a housing having an inlet, an outlet and two ports which function interchangeably as inlet or outlet ports placed on opposite sides of the inlet, a first valve seat placed on one side of the inlet between the inlet and one of the two interchangeable ports....

2,867,296. DISCHARGE ELECTRODE TENSIONING MEANS. Rudolf G. Streuber, Somerville, N. J., assignor to Research-Cottrell, Inc., Bridgewater Township, Somerset County, N. J.



1. In a discharge electrode assembly for an electrical precipitator operative over a substantial temperature range comprising a rectangular frame and a plurality of parallel discharge electrodes secured between opposed lateral members of the frame, the combination with said assembly of thermal expansible bellows means. . . .

2,867,287. DISCHARGE ELECTRODE. John A. Armstrong, Plainfield, N. J., assignor to Research Corp., New York, N. Y.



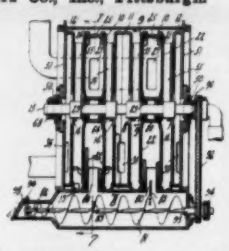
1. In a discharge electrode construction for an electrical precipitator having an electrode supporting frame, the combination comprising an elongate wire, helical sections formed integrally with each end of said wire, rigid tubular shroud members for receiving and snuggly engaging at least portions of said helical sections and for retaining the terminal portions of said sections, and means for connecting at least one of said shroud members to the electrode supporting frame.

Omitted from Listing For Dec. 9

2,863,203. CLAMP. Albert J. Dalpiaz, Dennison, Ohio.

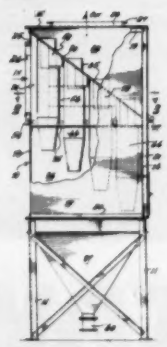
A clamp for affixing a pair of members in side by side relation comprising a vertically-disposed rigid arm, a vertically-disposed resilient arm arranged in spaced relation with respect to said rigid arm, a resilient strap connecting the lower ends of said arms together, a shelf projecting inwardly of said rigid arm and fixedly secured to the lower end of the latter, said strap being adapted to embracingly engage a pair of members arranged in side by side relation with said rigid shelf resting upon one of said members. . . .

2,867,288. DUST FILTER AND COLLECTOR. John Turner, Newton, Mass., assignor, by mesne assignments, to Koppers Co., Inc., Pittsburgh.



2. A filter member comprising a pair of spaced inner and outer concentric rings, a pair of spaced annular sheet material filter elements having their outer margins overlying the edges of said outer rings and their inner margins overlying the edges of said inner rings. . . .

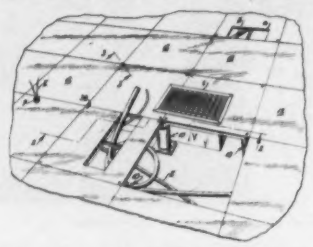
2,867,290. MULTIPLE ELEMENT CYCLONIC SEPARATOR. Norman M. McGrane, Long Beach, Calif., assignor to Western Precipitation Corp., Los Angeles, Calif.



1. Apparatus for separating suspended particles from a stream of gas by centrifugal action, comprising: a housing having a gas inlet and a gas outlet; a pair of rows of separating tubes inside the housing, each tube having a forwardly facing involute inlet near the top and the rows each containing a plurality of tubes. . . .

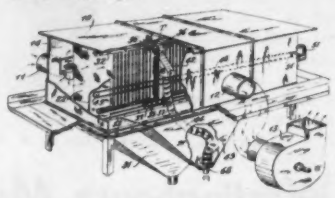
2,867,301. FALSE FLOORING SYSTEM. Joseph H. Benton, Baton Rouge, La.

A flooring system for supporting objects above the base floor comprising in combination a plurality of pedestals and a plurality of rectangular planar members, each of said pedestals comprising a plate adapted to rest on the



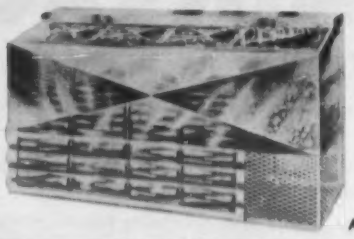
base floor, said plate having an upwardly extending tubular member with circular inside and outside walls in horizontal cross section, said tubular member having an open top with a horizontal top end, each of said planar members comprising a rectangular frame with a planar top surface sheet, said frame comprising side members intersecting at the corners of the frame and strengthening cross members extending perpendicular to the insides of said side members and intersecting at the center of said frame....

2,867,289. DUST COLLECTOR. Carl B. Sare, Shaker Heights, Ohio, assignor to The W. W. Sly Mfg. Co., Cleveland, Ohio.



1. In a dust collector, a casing, a dust wall therein dividing the casing into a dust chamber and a clean air chamber, a plurality of porous bags in said dust chamber arranged side by side with their open ends attached to said dust wall normally in communication with said clean air chamber....

"A CASE OF COOL JUDGMENT"



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SALES ENGINEER—mechanical engineering degree, seeks position with distributor or manufacturer's regional office in Middle Atlantic or Southeastern states. Eleven years' diversified experience developing dealer organization, sales, application, design, installation and service of air conditioning, heating and heat pump systems. Two weeks availability. "PETE" JENKINS, 56 Renee Street, Bristol, Conn.

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SERVICEMAN: SOUTHERN Oregon Tyler distributor needs a service man with at least five years' experience should be between 25 and 40. Send three references who have known you for at least three years. Phone Spring 3-5786. MAURICE WHITE & COMPANY, P. O. Box 1561, Medford, Oregon.

ENGINEER REFRIGERATION Controls—To head a department on design and development of commercial refrigeration control valves of all types; national corporation with midwestern manufacturing and engineering facility; salary and bonus commensurate with work background and ability. Send full details, qualifications and personal data, to BOX A6172, Air Conditioning, Heating & Refrigeration News.

APPLICATION AND sales engineer, technical graduate or equivalent wanted with refrigeration experience and sales. Age 25 - 32. Interesting work calling on contractors, wholesalers and air conditioning and refrigeration manufacturers in established territories for nationally known control manufacturer. Starting salary based on experience plus commission after indoctrination. All replies will be kept confidential. Address reply to BOX A6207, Air Conditioning, Heating & Refrigeration News.

MANUFACTURER'S AGENT. For sales of refrigeration components to OEM and wholesalers in central and western New York, and western Pennsylvania. Send resume and lines now carried to BOX A6239, Air Conditioning, Heating & Refrigeration News. Replies will be held confidential.

PRODUCT ENGINEER — Residential air conditioning—Leading manufacturer is expanding air conditioning development activity. Desire a graduate engineer having at least two years' experience with this type equipment. Located in Cleveland, Ohio area. Send complete resume and indicate salary requirements. BOX A6241, Air Conditioning, Heating & Refrigeration News.

EXPORT SALES estimator NYC—Established company expanding in international air conditioning and refrigeration field requires energetic young man with engineering background and minimum three years' experience. Splendid opportunity to create own department from outstanding lines already represented. Send resume BOX A6244, Air Conditioning, Heating & Refrigeration News.

WANTED: REFRIGERATION man, experienced, to handle counter and misc. jobs for north side, Chicago, Illinois refrigeration wholesaler. BOX A6245, Air Conditioning, Heating & Refrigeration News.

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RESIDENTIAL & COMMERCIAL air conditioners—air cooled 1 ph.—230V. 2 hp. highside with horiz. evap. $357.00; 3 hp.—$489.00; 4 hp.—$684.00; 5 hp.—$761.00. 2 hp. self contained horiz. units $306.00; 3 hp.—$504.00; 4 hp.—$599.00. Additional 5% discount for quantities of 5 units one order to one destination. ARCTICAIRE MFG. CO., 2201 Grand—K. C., Mo., Telephone BA 1-7055.

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SOMBREROS? NO. Now good thermostatic expansion valves made in Mexico. Half ton $8.75, ¾ and one ton $9.90. Agate needle for long life. Secret charge of all temperatures, no adjustment in the field needed. Very compact. Try this valve for utmost performance and satisfaction. Order from FRIGOTHERM MECANICA AGENTS, 2018 Zaragoza St., Laredo, Texas.

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REFRIGERATION BUSINESS—Clearing $1,000.00 month. Stock of new Gibson refrigerators and Amana freezers. Complete stock of parts, all tools, and office equipment also service truck. Owner wants to retire. Walk out $12,000. Fred Young, REFRIGERATION SERVICE CO., 324 E. Dixie Hwy. (near Ft. Knox), Elizabethtown, Kentucky.

MEDIUM SIZE refrigeration, heating and air conditioning sales and service. Doing business under two well known commercial and two domestic franchises, In southern part of Michigan. Reason for selling, ill health. BOX A6235, Air Conditioning, Heating & Refrigeration News.

FOR SALE — In Florida long established, profitable, heating and air conditioning business in large fast growing market area. Will reply only to qualified investors — Price $125,000.00. BOX A6236, Air Conditioning, Heating & Refrigeration News.

FOR SALE: Old, established commercial refrigeration, sales and service on main street of town of 35,000 population. Columbia Basin area. Long-time lease on building and dwelling. Owner wants to retire. Will sell at inventory. Write BOX A6242, Air Conditioning, Heating & Refrigeration News.

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ATTENTION REFRIGERATION Servicemen: Would you be interested in saving from 25 to 50% on many standard refrigeration and air conditioning parts and supplies? Send for our free circulars and catalogs. WALTER W. STARR, 2833 Lincoln Ave., Chicago 13, Illinois.

Servicing Automobile Air Conditioners

(Vol. 4 — 1959 Models)

BY C. DALE MERICLE

With this issue we begin the fourth series of articles describing service procedures on automobile air conditioning units. In this and subsequent instalments 1959 models of the leading "independents" and automobile manufacturers will be described in detail.

As with the previous series, these articles are intended for the refrigeration serviceman who has a good grounding in fundamentals backed with practical experience.

Previous articles covering earlier models of many makes of units are available from the NEWS in manual form as Vols. 1, 2, and 3 of "Servicing Automobile Air Conditioners," Vol. 3 being devoted to 1958 models.

EATON

Eaton Mfg. Co.
E. 65th & Central
Cleveland 10, Ohio

Following several years' production of air conditioners for other manufacturers, Eaton entered the "after-market" in 1959 with an under-dash type unit.

The Eaton air conditioner follows the conventional arrangement by mounting the condenser in front of the car radiator, driving the engine-mounted compressor through a magnetic clutch, and hanging the evaporator case assembly beneath the dash (Fig. 1).

Refrigerant-12 is used in the Eaton system.

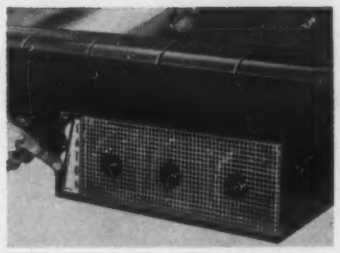

FIG. 1—Evaporator case assembly of Eaton under-dash unit introduced in 1959 for "after-market."

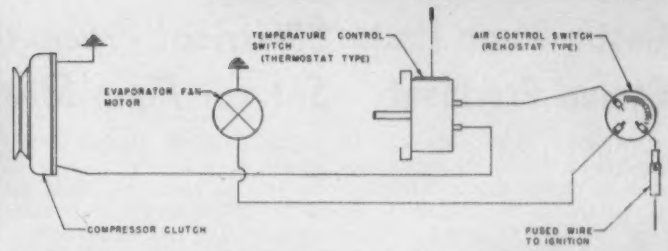

FIG. 2—Wiring diagram of Eaton 1959 air conditioner. Note that blower "air control" switch is wired in series with thermostat which controls clutch operation.

Compressor

Depending on the make and model of the car, either the Tecumseh HH or the LBA "low boy" compressor is used with Eaton air conditioners.

The LBA compressor is generally found on post-1957 model cars.

A magnetic clutch is standard equipment.

Condenser

Condenser is mounted in front of the car radiator.

On some makes and models of cars a special radiator fan is employed with Eaton units to insure adequate airflow through the condenser and radiator.

A combination receiver, drier, and sight glass is used. Its location will vary with the car.

Evaporator

The 1959 Eaton evaporator assembly includes the evaporator coil, thermostatic expansion valve, adjustable air outlets, and controls.

Three adjustable air outlet louvers are provided on the front of the case. A single blower is used.

Thermostatic expansion valve superheat setting cannot be adjusted in field. Inlet screen in the expansion valve, however, can be removed for cleaning if it becomes plugged.

Controls

Air temperature produced by the 1959 Eaton conditioner is controlled by varying the fan speed and thermostatic cycling of the clutch and compressor.

Blower and thermostat controls are mounted on the front of the evaporator case at the left side.

These two controls are wired in series so that both have to be turned on for the system to operate (Fig. 2).

Blower control is of the rheostat type permitting infinite variation of blower speed. It also has an "off" position.

Thermostat setting to control clutch and compressor operation is adjustable by a rotating knob. An "off" position is also provided.

SERVICE HINTS

Evacuating System

Eaton units should be evacuated following initial installation or opening the system for repairs.

Use of a vacuum pump is recommended by the manufacturer.

The system should be pulled down until a vacuum of approximately 28 in. is obtained, the company advises.

Charging System

The Eaton unit is charged through the low side with refrigerant in the vapor state. The compressor should be operated at 1,200 to 1,500 r.p.m. with controls in maximum cooling position during charging.

Complete charge is approximately 3 lbs. of Refrigerant-12.

When the system is fully charged, the suction pressure should run between 25 and 40 p.s.i.g. and the head pressure between 140 and 220 p.s.i.g. These pressures will vary with inlet air conditions. Generally, operating pressures will be high in humid conditions and low under comparatively cool and dry conditions.

Trouble Shooting

Service complaints and procedures common to most under-dash systems which control temperature by means of a thermostat cycling a magnetic compressor clutch will apply to the 1959 Eaton air conditioner.

High discharge air temperature accompanied by high suction pressure, for example, could be caused by (1) failure of thermostat, (2) clutch slipping, (3) belt slipping, (4) expansion valve bulb loose, etc.

Icing of evaporator and low suction pressure can result from (1) failure of thermostat, (2) low refrigerant charge, (3) moisture freezing at expansion valve, (4) expansion valve inlet screen clogged, (5) expansion valve feeler bulb charge lost, (6) low air supply to evaporator, (7) liquid line or receiver plugged or restricted, etc.

High head pressure can be caused by (1) dirty or clogged condenser, (2) air in system, (3) belt slipping, (4) excess refrigerant charge, (5) engine overheating, etc.

(Next: Climatic Air)

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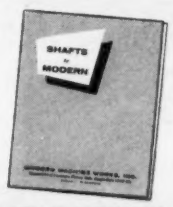

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Gustin-Bacon Elects Conlon President

KANSAS CITY, Mo.—J. T. Conlon has been elected president of Gustin-Bacon Mfg. Co., succeeding J. D. Simmons, who will continue with the company as a director and consultant.

J. T. Conlon

Conlon joined Gustin-Bacon in 1937, in the company's sales department. An engineering graduate of Purdue university, he subsequently became chief engineer and vice president in charge of engineering. In April of 1958, he was elected executive vice president of the company.

Gustin-Bacon makes thermal and acoustical glass fiber insulations, couplings and fittings for plain and grooved end pipe, and a variety of products for the railroad industry.

Electrical Precipitation Seminar Set for Penn State June 14-19

UNIVERSITY PARK, Pa.—An electrical precipitation seminar will be conducted June 14-19 by The Pennsylvania State university, it was announced.

Ralph E. Armington, associate professor of electrical engineering at Penn State and coordinator of the seminar, said the first day of the event will be devoted to the basic principles, including the nature of dust particles, the electrical charging of particles, and the collection and removal of charged particles.

This presentation will be made by Dr. Harry J. White, director of research, Research Cottrell, Inc.

Other topics to be considered will include fly-ash and cement-dust collection, air cleaning for air conditioning, and air-pollution control. Speakers on these topics will include Sidney R. Orem, vice president, Thermix Corp., and Gaylord W. Penney, professor of electrical engineering, Carnegie Institute of Technology.

Among other seminars for engineers and scientists to be conducted by the university this summer will be one on electrical contacts June 7-12, a plastics seminar June 28-July 3, an R & D management development seminar July 5-10, and one on report writing Sept. 14-25.

Inquiries concerning these programs should be directed to Engineering Seminars, Extension Conference Center, The Pennsylvania State University, University Park, Pa.

Frigidaire First Quarter Sales Top '58; See '59 as Third Biggest Year

CHICAGO—Herman F. Lehman, General Motors vice president and head of the Frigidaire Div., said recently that first-quarter sales of all Frigidaire products this year were ahead of last and that sales projections indicate this could be the firm's third biggest year.

Here to attend the third in a series of four regional sales meetings, Lehman reported he has found Frigidaire distributing organization executives across the country are enthusiastic about appliance business prospects.

Product features that eliminate or simplify household chores are stimulating Frigidaire appliances sales, he emphasized, adding:

"An excellent example is the 'Frost-Proof' refrigerator-freezer introduced a year ago. It has proved so popular that we have had to double our production capacity for this type unit."

He revealed that products with "dramatic" new features are being added to Frigidaire's line at mid-year and are being previewed at these regional meetings.

Philco Products To Be Shown In Moscow

PHILADELPHIA — Four Philco consumer products — a room air conditioner, two TV receivers, and a "Duomatic" combination washer-dryer—will be shown in the American National Exihibition in Moscow next July, Philco announced.

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Drayer-Hanson --

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er's export business, as well, it was pointed out.

In the organizational realignment, design-development projects and other phases of engineering formerly under Pollock will be vested in a staff headed by C. W. Mallinckrodt, whom Hunt has named chief engineer.

Hunt further indicated Sam Nelson will continue as manager, Drayer-Hanson Industrial Div.; as will Earl C. Kallman, assistant manager in charge of sales.

Additions to Drayer's sales department staff are to be announced soon.

Metals & Controls Will Merge with Texas Instruments

ATTLEBORO, Mass. — C. J. Thomsen, president of Metals & Controls Corp., announced that stockholders representing more than 90% of the company's outstanding stock voted at a special meeting April 10 to merge the Attleboro firm into Texas Instruments, Inc. of Dallas.

Texas Instruments stockholders, at their annual meeting in Dallas on April 15, also approved the merger, which was expected to become effective within a week thereafter.

Metals & Controls stockholders were told that the 1959 first quarters' sales were the best for any quarter in the firm's history. They total approximately $12,000,000 exclusive of foreign subsidiary sales. This is 17% over the $10,250,000 sales in the first quarter of 1958.

First-quarter 1959 earnings information is not yet available.

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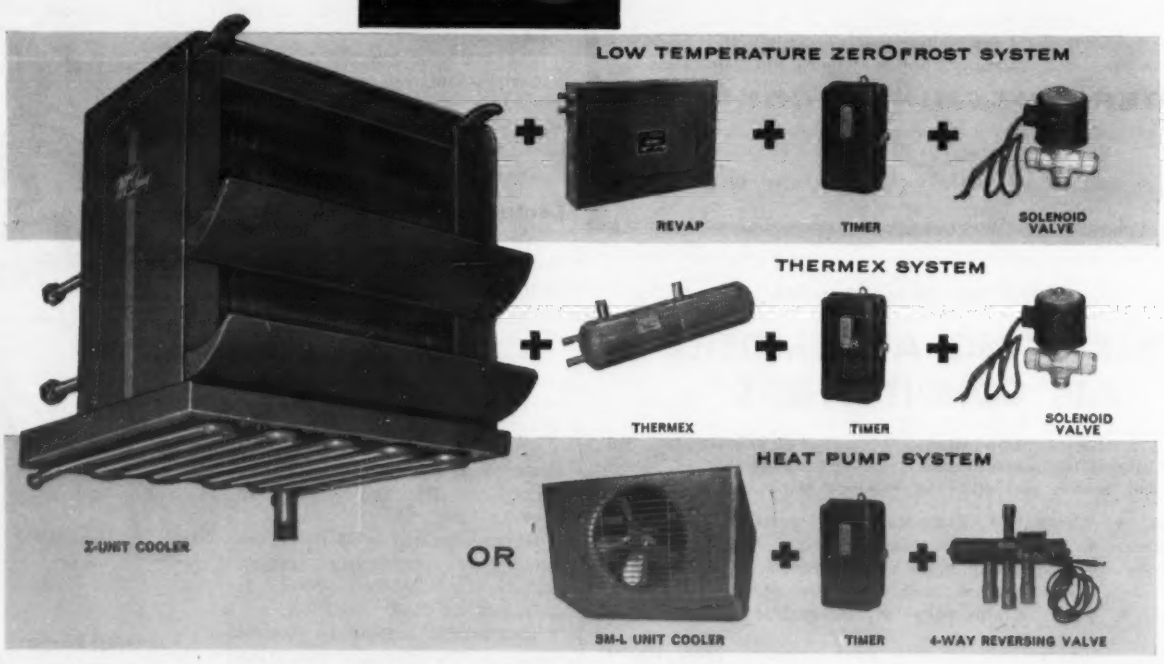

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